VOL. XX NEW YORK—THURSDAY, MAY 6, 1909—CHICAGO No. 18

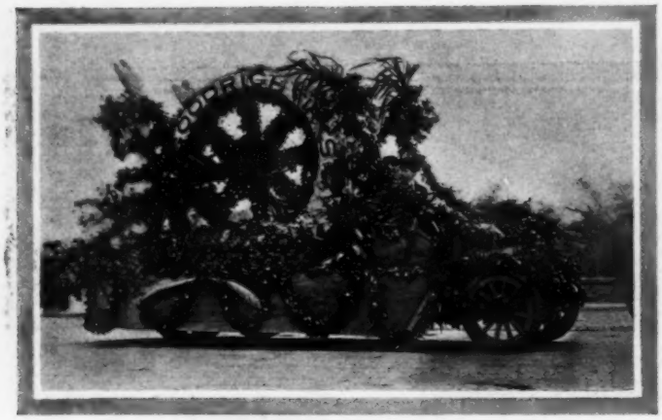
THE AUTOMOBILE

Told Thousands of Auto's Universality

TELLING to thousands in a comprehensive and practical manner the varied uses to which the motor-driven vehicle is now put, the automobile parade in New York City, Monday afternoon, served as a public demonstration of value and attracted widespread interest. Postponed from the preceding Saturday, because of the inclement weather, the event was favored with an ideal Spring day. Though the number of cars in line—310—proved disappointing, the procession adequately illustrated how the automobile now figures in the transportation of all kinds of merchandise, as well as for the carriage of passengers, individually and collectively.

Beginning with the light delivery wagon, carrying a load of a thousand pounds, and ending with the heavy five-ton truck dragging a loaded trailer with two additional tons, the commercial section showed cars suitable for any service that the demands of business might require. The public service vehicle had a good representation in taxicabs and twelve-passenger omnibuses, there being thirty of such vehicles in line.

Crowds Await the Parade Eagerly.—As early as 2 o'clock the sidewalks on both sides of Broadway were occupied by a thin line of spectators, and the numbers increased until there was hardly space for passage except by way of the street. Fifth avenue had its lines of spectators in considerable numbers, and it was estimated roughly that nearly 200,000 saw the parade



Goodrich Tires Were in Evidence in the Procession.

The Diamond Tire Float Was Well Designed and Chic.

Warner Auto-Meters Were Well Advertised as Usual.

Studebaker Closed Body Delivery Wagon in Parade.

from beginning to end. The crowds were thickest at Bretton Hall, on Broadway, where the coronation of King Guy and Queen Annette took place, and along Automobile Row, where noise-producing devices of all kinds served to pass away the time until the cars hove in sight.

Parade Delayed at the Start.—The coronation ceremony was delayed for a short time owing to the inability of King Guy to reach Bretton Hall on time because of difficulty experienced with the royal robes. Queen Annette was ready for the curtain bell. The coronation finally took place at 3 o'clock, General John T. Cutting performing the ceremony. There was little speech-making save a congratulatory address to the royal party on their popularity with the automobile public. The King and Queen then mounted their respective cars, and headed by a band of music started. Queen Annette, in a gown of shimmering green silk, rode in a Buick car, and had a throne in the shape of a seashell. The King's throne was mounted on a Stearns chassis and was bounteously decorated in red and gold. As the two floats pased up Broadway, the other cars swung into line from the side streets.

Historical and Racing Cars Form First Division.—The first division of the parade followed the royal cars and consisted of old models of well-known cars, and racing cars of the present day. Among the "old timers" was the 1893 model of the Haynes, running under its own power, and an ancient Columbia which was towed by an up-to-date car of the same make. The Grand Prix Benz racer and the Fiat Cyclone were also in line, the former being towed by reason of its inability to run as slow as the general pace required. A 1900 model Panhard, the Renault racer, and the hillclimb and straightaway winners were also in this division.

Many Makes of Cars Represented.—Following the historical and racing cars came the touring cars of present day models. There were attempts at decoration in the shape of American flags and bunting, and some of the cars were festooned with colored streamers and bombarded with confetti as they passed along Broadway. Taxicabs carrying crippled children from various institutions were included in this division, which numbered 230 cars. A number of foreign cars as well as the majority of American makes were represented, two of the former, the Nagant of Belgian manufacture and the Silent Knight Daimler being unfamiliar to the majority of spectators. The driver of the latter car was appropriately costumed in a suit of armor.

Decorated Cars the Feature of the Parade.—The decorated division was the third and the subject of much comment on all sides. Three cash prizes were offered in this division and twenty cars competed, all showing taste and ingenuity in their design. The Lozier car, with its body in the form of a horn of plenty and decorated with American Beauty roses and occupied by four beautiful women attired as Colonial Dames, was considered the most attractive and received the first prize of $500. A representation of Cleopatria's barge, decorated with white flowers and mounted on an Oldsmobile, received the second prize. The third prize was awarded to a Matheson float decorated with red roses and occupied by girls in Pierette costume.

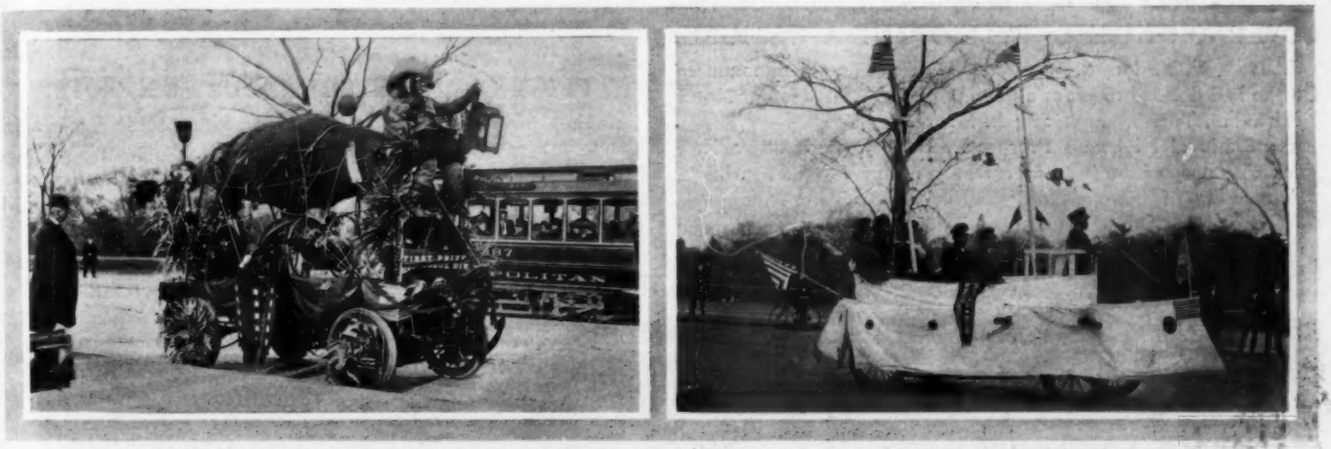
The grotesque cars created considerable amusement, especially the Desberon float representing Roosevelt on the prow of an airship with revolving propellor and surrounded by three men made up as African savages in the jungle. This float was awarded the first prize in the class. A Reo float, in the shape of a man-of-war and with a crew of negro sailors, took second prize in this division.

Michelin Float Makes Hit in the Commercial Division.—The commercial division brought out twenty cars of which three were awarded prizes. The float of the Michelin Tire Company made a decided hit and was accorded first prize, the Bibendum Twins on the elevated seat causing much laughter by their seemingly hilarious state. These figures represent the trademark of the Michelin Company. The Thermos float, built in the form of a bottle and apparently drawn by doves and driven by a young woman seated on the neck, mounted on an English Napier chassis, received second prize. The third prize in this division

A Heavily-Loaded Packard Truck and Double-Tip Couple Gear Truck That Were Features of the Commercial Division.

went to the Matheson Trophy car, in which trophies won by Matheson cars were shown on a large stage finished in white with columns at the corners, and a golden throne on which was seated a girl at the rear of the float. The Goodrich float with its huge tire in the centre and garlands of flowers and leaves, was also much admired, and the calliope car with its air compressing plant on a small trailer attracted attention by the music played at intervals along the route. The remainder of the sixty cars in this division consisted of trucks and delivery wagons, those of the daily papers making a good showing.

After the procession passed the reviewing stand at Ninety-second street and Broadway it continued to One Hundred and Eighteenth street, returned down the other side of the street to Forty-eighth and thence crossed to Fifth avenue, which was traversed to One Hundred and Tenth street, where the cars were disbanded. The judges made their choice of the winners on the stand, and the results were carried to Carnival Headquarters by messengers, so that the prizes were immediately given.



In the Grotesque Division "Teddy in Africa," and the Colored Marines in the Reo Warship, Were Leading Prize Winners.

One Gallon Efficiency Test to Be Held Friday.—The one gallon efficiency test postponed from Friday of last week will be held to-morrow (Friday). The results will be figured on a ton-mile basis. A radical cut in the fee, and the personal solicitation of entries by the interested and efficient committee, has resulted in a large increase in the number of entrants.

The Effective Tire Displays by Representative Manufacturers in the Commercial Division Showed Their Progressiveness.

The Michelin Bibendum Twins. King Guy Sitting in State. Matheson Float with Trophies.

QUESTION JAMAICA STRAIGHTAWAY COURSE.

According to a story printed in the New York *Globe*, Tuesday, the Hillside avenue course at Jamaica, L. I., was 235 feet short for the mile, and 270 feet short for the two-mile stretch. According to the *Globe* story, John Middletown, civil engineer of Brooklyn, in the presence of C. R. Hendricks, Ralph De Palma, and W. J. Morgan, measured the course and discovered the discrepancy. According to members of the committee in charge of last week's races, this measuring must have been started from the wrong mark. On this point they are very positive.

GOVERNOR HUGHES WILL GRANT A HEARING.

ALBANY, N. Y., May 5.—Governor Hughes this noon announced that he had decided to grant a hearing on the Allds-Hamm Motor Vehicle bill, Tuesday next, at 4 P. M.

The National Highways Prospective Society, practically a New York City proposition, was energetic in asking for the hearing.

A meeting of directors of the New York State Automobile Association has been called at Albany to-morrow (Friday). Automobilists will use their united influence in convincing the Governor that the proposed law exactly meets present needs.

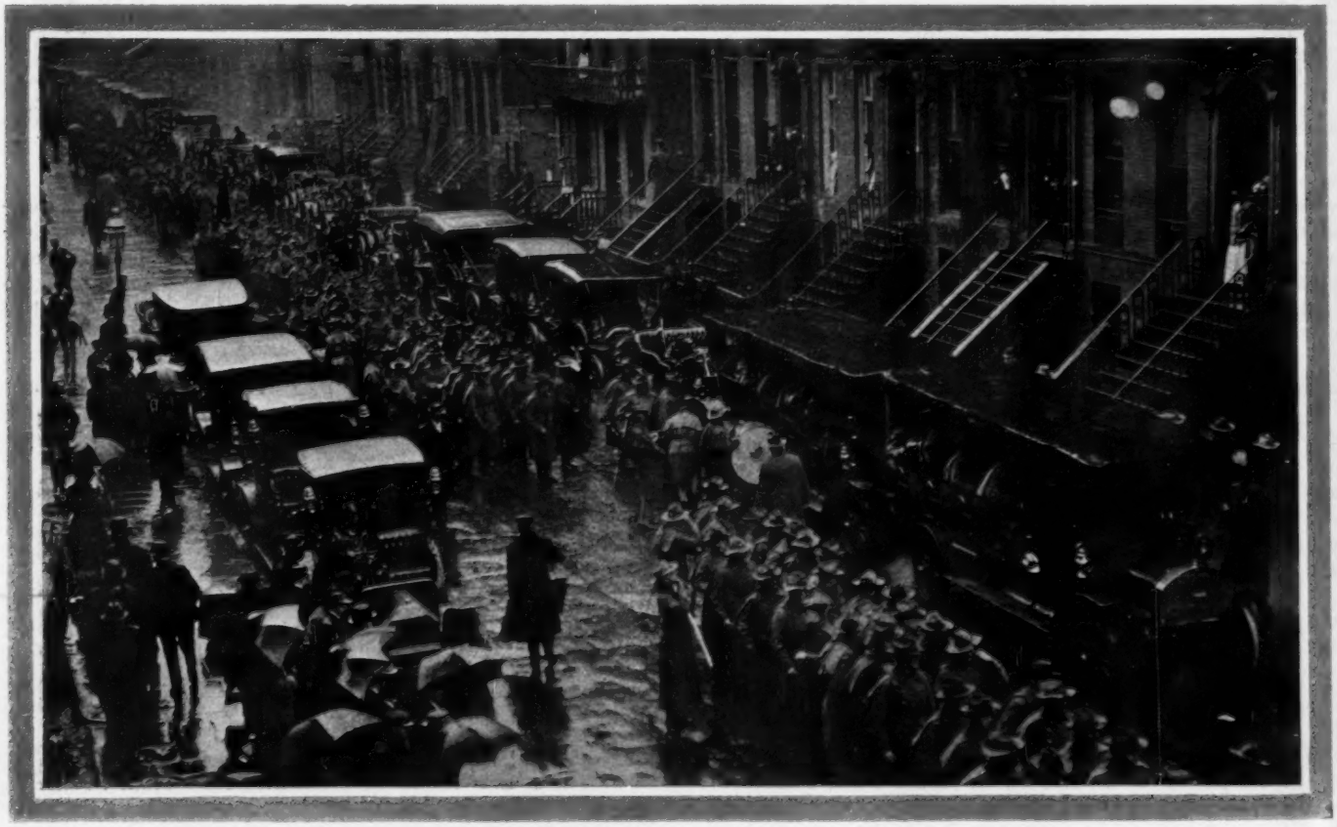
AMERICAN LOCOMOTIVE JOINS A. L. A. M.

Announcement was made Wednesday of the admission of the American Locomotive Company to membership in the Association of Licensed Automobile Manufacturers. Included in the publicity matter from the A. L. A. M. is the following:

"That such an important company should acquire license under the Selden patent at this time is not only a matter of considerable interest, but perhaps very significant, inasmuch as the trial of test cases of the Selden patent, which is claimed to cover all gasoline automobiles now being commercially made, is about to be had in the United States Federal Court; the cases being on this month's calendar."

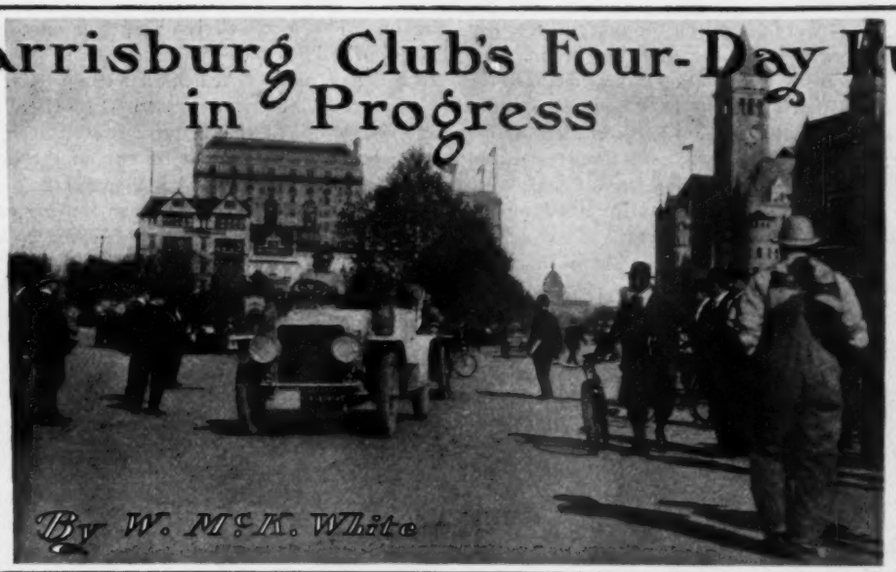
FLINT COMPANY BRINGS LICENSE SUIT.

Against several members of the Association of Licensed Automobile Manufacturers, the Flint Automobile Company, of Flint, Mich., Tuesday, began in the United States Circuit Court, Brooklyn, a suit for $75,000 damages, alleging that it was prevented from conducting its operations because it refused to pay royalty on the Selden patent. Of course, many of the allegations by the plaintiff are repetitions of items in the litigation long pending.



Beginning of the Abandoned Effort for the April 29 Military Demonstration Which the Rain Peremptorily Ended.

Harrisburg Club's Four-Day Run in Progress



Arrival of the Endurance Contestants at the Nation's Capital, Coming Up Pennsylvania Avenue.

HARRISBURG, PA., May 6.—Historic and picturesque Pennsylvania and Maryland are this week the scene of a four-day reliability contest—the third of the Motor Club of Harrisburg. Valleys, hills and mountains are on the route of the 694 miles, with all possible road surface conditions, and coupled with rigorous rules and other requirements to thoroughly test those cars which are essaying the trip. The start was made Monday morning; distance, 153 miles, to the national capital, Washington, and interspersed with four checking stations. A return to Harrisburg occupied the second day, with four controls, and the route was entirely different from the outbound run, a length of 170 miles. A still longer route was that for Wednesday, following the Susquehanna Valley and then bearing eastward to Wilkes-Barre, 180 miles, for the night. The Pocono Mountains are being crossed to-day, in the final lap, the longest of them all—189 miles—back to Harrisburg.

As a contest, this one is thorough and exacting, the roads being the prime testers, and as the result of these and in connection with them come the rules and time schedule. Other runs have had more entries, and it was expectd that the list would be larger, but the strenuous nature of the event probably discouraged participants. Fourteen cars started, and their drivers include those noted for success in affairs of this kind.

There are four trophies, one for each class, that for the large touring cars having been donated by Governor Edwin S. Stuart, who is an enthusiastic automobilist. That for the smaller ones was given by the Harrisburg Board of Trade, and of the two in the runabout classes one is given by the Washington automobilists, known as the National Capital cup, and the other is the Harrisburg *Patriot* cup.

Chairman Beecroft, of the technical committee, marshalled his forces early on Sunday afternoon, J. C. Kerrison, of Boston, and Mr. Wright, of this city, acting as his assistants, and the work of examining and sealing the cars commenced. Some few notations were made at the instance of the drivers as to parts or accessories on their cars, which, while doing the required work satisfactorily, would not class as perfect. Play in steering wheels was noted in degrees, and then the seals attached to coils, battery boxes, floor boards, hoods, and other parts of the cars through which work might be done. It afterwords developed that the seals were of little use, inasmuch as they were allowed to be broken at noon for oiling, or at any control, and during the remainder of the days the parts were unsealed. The committee was able to complete the examination by evening, and at a meeting held in the clubrooms the details of the event were explained to drivers, mechanics, observers, and mere tourists by Referee Johnston.

Regulations used in previous runs of the club had proven so satisfactory that with few alterations they were adopted for this year. Briefly, they included the following: A definite time schedule, with numerous intermediate checking stations; observers to report any work done for which there was a penalty, except that of oiling at stated times and places; a thorough technical examination. The remaining rules hinged mainly on these three. As an average the schedule called for between 18 and 20 miles per hour, with time lost in repairing tire troubles not taken out, but for unavoidable delays time was allowed. Penalties were inflicted for motor stops, except when filling with gasoline, or at the noon control, and if the motor was stopped momentarily, as by stalling, an easy start set aside any reason for penalty. For making adjustments two points per man per minute was inflicted, with five for broken seals. Herewith is the list of all cars, contesting and official, participating in the run:

CONTESTANTS.

CLASS A—TOURING CARS CATALOGUED AT $2,250 AND OVER.

No.	Car.	H.P.	Cyl. Bore.	Piston Stroke.	Model.	Cyl.	Driver.
1.	Oldsmobile	60	4 3-4	4 3-4	Z	6	T. W. Berger.
2.	Pullman	40	5	5 1-4	M	4	R. L. Morton.
6.	Rambler	45	5	5 1-4	45	4	F. W. Darnstaedt.
8.	Maxwell	24-30	4 1-4	4 1-4	DA	4	C. E. Goldthwaite.
10.	White	40			M		Walter C. White.
11.	Thomas	40	3 5-8	4 5-16	6-40	6	M. R. Graupner.
12.	Franklin	28	4 1-4	4	D	4	C. S. Carris.

CLASS B—TOURING CARS CATALOGUED UNDER $2,250.

4.	Pullman	30	4 1-2	4 1-2	K	4	A. B. Cocklin.
9.	White	20			O		W. B. Rheineck.

CLASS C—RUNABOUTS CATALOGUED AT $2,000 AND OVER.

3.	Pullman	40	5	5 1-4	4-40	4	H. P. Hardisty.
15.	Peerless	50	4 7-8	5 1-2	25	6	Ed. Burnshaw.

CLASS D—RUNABOUTS CATALOGUED UNDER $2,000.

5.	Pullman	20	3 3-4	3 3-4	L	4	J. G. Goodman.
7.	Middleby	25	4	4	D	4	E. B. Hume.
16.	Maxwell	24-30	4 1-4	4 1-4	K		J. E. Sellers.

OFFICIAL CARS.

	H.P.		
Pullman	40	Pilot	C. C. Cumbler.
Pullman	30	Patrol	Watt Davis.
Stoddard-Dayton	45	Patrol	Cox Auto Co.
Oldsmobile	45	Chairman	C. R. Misner.
Rambler	32	Patrol	A. W. Brubaker.
Pullman	40	Referee	W. Graupner.
Maxwell	24-30	Press Car	A. Redmond.

THERE WERE PENALTIES ON THE FIRST DAY.

WASHINGTON, D. C., May 3.—As soon as the contestants were started from the public square in Harrisburg their troubles began, for there was a short run over the Susquehanna river bridges, a drop into mud, more mud, and deep holes. Penalties were bound to occur after a run of that character, and that there were as few as were recorded is evidence of sturdiness.

Six absolutely clean scores were placed on the official record in place of fourteen perfect ones when the morning began. Of the remaining eight, however, deliberation may change the marks against the cars, inasmuch as four have been announced as incomplete, such as those that were blocked, or took wrong roads, etc., while one car was withdrawn, and three penalized definitely. Walter C. White was one of those to suffer penalty, seven points being his share, five of which was for breaking the seal of his hood to examine a leaking water union and two points for the minute or less needed in which to tighten it. The Maxwell roadster turned a spring shackle, not a matter for concern in ordinary touring, but in a contest an occurrence for which two points is the price. The Thomas Light Six received 17 points, five for breaking the seal of the hood and the remainder for oiling when not in a control and for fixing a rod which is between the front goosenecks of the frame, broken en route. The car withdrawn is the small White touring car, which had a key on the rear axle shear off. This necessitated the replacement of the part, and some work, but the car arrived this evening, and will continue as a non-contestant.

Two hours and a half was the time allowed for the first control, that between Harrisburg and historic Gettysburg, a distance of 37.7 miles, made up of roads which could hardly be much worse and still be passable. When the tourists were not being precipitated into some puddle or hole they were standing up in the cars while passing over waterbreaks, so that the entire ride was a rough one.

The second lap of the day, from Gettysburg to the famous old town of Hagerstown, was 34.3 miles long, and the time called for was two hours, so that the average of 17 miles per hour gives an indication that allowance was being made for tedious work. The roads were not muddy as the autos approached the Mason and Dixon line; in fact, they were so dry that the dust was thick, but very rough, with a hard surface. To Frederick—always associated with Barbara Freitchie—from Hagerstown was 25.9 miles, and the schedule called for a time of 1 hour 25 minutes; then there was a stretch of 23.6, with an hour and a quarter given; and finally Washington, 31.7 miles, in 1 hour 40 minutes.

The National Capital road laws received a great deal of bitter and apparently well-deserved criticism from the members of the party, for not only are the speed limits extra low, but the drivers of wagons have no conception of the meaning of "keep to the right," nor do the people seem to care whether they are walking on the street or the sidewalks. Three of the party were arrested for "speeding" at fourteen miles an hour.

SIX CLEAN SURVIVORS ON SECOND DAY.

HARRISBURG, PA., May 4.—The run was planned with the idea that Harrisburg should see more of the contestants than is usual, and so the city not only has start and finish, but also a night control en route. From Washington, D. C., to-day the cars returned, but by a different route. Baltimore, York and Lancaster were prominent points in the itinerary, and the roads were generally rough, with the exception of the stretches from the "City of Magnificent Distances" to Baltimore.

Roughness and dustiness had little effect on the contestants, for of the three penalties inflicted only one involved a car which had a perfect score previously. Another minus mark went to a car with a low record against it. The Rambler, Middleby and Maxwell roadster were the sufferers. In the score announced at Washington there were four given as incomplete: Pullman roadster, driven by Hardisty, was set at 9 points for lateness; another Pullman, a small runabout, driven by Goodman, received 19 points for the same reason; the Rambler, which is slated at 735—241 for lateness and 494 for work done; and the Middleby, which was later set perfect.

The run of to-day has affected two of these: the Rambler, which is again given as incomplete, for a few adjustments were made to-day that may lead its driver to decide upon withdrawal rather than to carry a heavy handicap of points. The Middleby had not arrived at a late hour, and so is put down as incomplete again. The Maxwell roadster had an exciting experience, and for work done there is a penalty of 56 points, while its time record had not been calculated completely.

As a result of two days of touring there are three clean scores in class A, out of six starters; two clean in class B, out of three; one clean in class C, out of two at the beginning, and there is none clean in the small runabout class.

Oldsmobile, Franklin; Pullman touring car, driven by Morton; Pullman touring, driven by Hardisty; Maxwell touring car, driven by Goldthwaite, and the Peerless roadster are perfect.

With no roadside troubles of moment, and just as little tire changes, there were two incidents happening en route to attract attention, aside from that of the beautiful scenery and the road conditions. One occurred to a Maxwell roadster, driven by J. E. Sellers, which met a man with two horses near York. One was being led and the other loose, and at just the critical moment the latter jumped across the road and was hit by the car. Sellers set his brakes, skidding the rear wheels, and from hitting the heavy animal and the road conditions the car turned upside down. The driver and observer were thrown free, the latter being stunned and the horse's left front leg was broken. The motor continued to run bottom side up, and when the car was righted, with the assistance of passengers in official cars, there was little damage apparent except bent fenders. The car proceeded, reaching this city somewhat late.

The Stoddard-Dayton touring car, which was carrying the checkers ahead of the run, scared a horse in Westminster, causing the animal to break a shaft and the top of the buggy to which it was attached. The driver of the car was held to await action for damages, as is usually the case happening to autoists whether they are to blame or not, and the checkers were taken on by Referee R. H. Johnston's six-cylinder Thomas.

The "Capital City" was left at 7 o'clock, with the day a beautiful one, and the ride to the outskirts of Baltimore was generally magnificent, as hard and smooth as a floor, with the few rough intervals being put into shape, so that the route will be one of the best examples of excellent road building in existence.

The Automobile Club of Maryland supplied box lunches and in other ways made the short stay extremely pleasant.

Cordial enthusiasm was shown between Baltimore and Harrisburg, many automobiles being parked along the country roadside, while other people drove to the route in carriages, and work was generally suspended in smaller towns. Hanover and other larger places turned out in force, while at Steelton the police force kept the paved streets clear while many of the drivers took advantage of a sign which read "Speed Limit, 95 Miles per Hour."

Herewith is the score at the second day's conclusion:

COMBINED SCORE FOR FIRST AND SECOND DAYS.

CLASS A.

No.	Car.	Time.	Work.	Seals.	Oil.	Gas.	Water.	Total.
1.	Oldsmobile	0	0	0	0	0	0	0
2.	Pullman	0	0	0	0	0	0	0
8.	Maxwell	0	0	0	0	0	0	0
12.	Franklin	0	0	0	0	0	0	0
10.	White	0	2	5	0	0	0	7
11.	Thomas	0	12	5	0	0	0	17
*6.	Rambler	241	494	0	0	0	0	735

*Second day penalties not yet computed.

CLASS B.

No.	Car.	Time.	Work.	Seals.	Oil.	Gas.	Water.	Total.
4.	Pullman	0	0	0	0	0	0	0
9.	White—Withdrawn, continue as non-contestant.							

CLASS C.

No.	Car.	Time.	Work.	Seals.	Oil.	Gas.	Water.	Total.
15.	Peerless	0	0	0	0	0	0	0
3.	Pullman	9	0	0	0	0	0	9

CLASS D.

No.	Car.	Time.	Work.	Seals.	Oil.	Gas.	Water.	Total.
7.	Middleby	0	0	0	0	0	0	0
5.	Pullman	19	0	0	0	0	0	19
16.	Maxwell*	0	58	0	0	0	0	58

*Second day penalties not yet computed.

sturdiness of the cars.

WEDNESDAY REDUCES PERFECT SCORES.

SUNBURY, PA., May 5.—The first leg of to-day's course, 58 miles, reduced the number of perfect scores to three: Franklin, Peerless, Oldsmobile. All others are late. Roads are in terrible condition, as result of high water, and tire troubles are numerous.

"Andy" Auble, Oldsmobiler," wins Pittsburgh Endurance Race

Start from Hotel Schenley

PITTSBURGH, May 3.—For just one-half of the past week the automobilists of western Pennsylvania occupied the center of the stage. The "doings" consisted of an extremely well-fought "mud plug," officially known as an endurance run. This was planned by the *Chronicle-Telegraph* and the *Gazette-Times*. The dates first selected for the run were later changed in the hope that the muddy country roads would be in better condition. This was a delusion, for with the heavy rains which lasted nearly all the week conditions on many of the roads traveled could not have been worse. The extended preparations for the run, however, served to create tremendous enthusiasm all along the line, and there was not a town or village on the route which had not been fully advised of the event and which did not in some way show its appreciation of the honor.

The route lay over hilly, rough, and muddy cross-country roads, through the unsettled portions of eight counties surrounding Pittsburgh, beginning in a terrific rain and hail storm, and ending on the third day in a snowstorm, that was blinding in its ferocity.

Thirty-seven cars were entered, twenty-four started, and eleven finished. After the technical examination, not a single perfect score remained.

Pos.	Make.	Class.	Driver.	Time.	Penalties Rprs. and Adjustm't	Total.
1	Oldsmobile	B	A. Auble	18	17.0	35.0
2	Knox	B	W. J. Murphy	63	.9	63.9
3	Premier	B	Ray F. McNamara.	65	1.5	66.5
4	Oldsmobile	B	F. G. Folberth.....	70	1.2	71.2
5	Chalmers-Detroit.	B	C. B. Lorimer.....	70	13.0	83.0
6	Packard	A	George F. Titlow..	86	3.2	89.2
7	Peerless	A	O. E. Vestal.....	87	6.6	93.6
8	Franklin	B	C. S. Carris.....	102	.0	102.0
9	Corbin	B	W. C. Urling.....	257	25.9	282.9
10	Maxwell Roadster	D	C. E. Goldthwaite.	302	17.9	319.9
11	Maxwell Baby....	E	E. G. Gager.....1013		2.6	1015.6

The run was divided into three days, starting from and finishing at the Hotel Schenley. A different route, laid out in a different direction, was pursued each day, with the cars operating under time limits. This meant penalties each day, in addition to which the referee and judges took the cars in hand after the close and went over them in search of replacements or repairs. The result of their search, added to the previous accumulations of trouble, gave the final standing. When this was announced joy reigned supreme in the Oldsmobile camp. Not only did "Andy" Auble, in Olds No. 11, win hands down, but Folberth, driving No. 12, edged in fourth. As this was the only make to have two cars finish, the adherents of it made "some" noise.

Some famous drivers were entered in the contest. C. E. Goldthwaite, who was in the Maxwell 10,000-mile non-stop contest, also drove a Maxwell in this run. "Perfect Score" Franklin Carris had to doff his plumes, for he was penalized 102 points. Earl Kiser, of racing fame, found it rather monotonous eating mud, but stuck to the game pluckily. The mighty Hans Wagner, without whom the Pittsburgh baseball team would be a sorry affair, entered his car for the run with explicit instructions to the driver that it should not be marred. It was ready for the paint shop at the end of the first day.

Assisting Referee Ferguson at the start were Drs. W. C. Cook and W. R. Stephens, the judges, and Chief Observer I. F. Bailey. Pilot E. W. Cole left at 5 o'clock in the morning in a Velie car provided by the Keystone Automobile Company. W. N. Murray, president of the Standard Automobile Company, in a Packard, handled the official car of the route.

From a social standpoint the endurance run was a great success and the newspaper management was warmly commended on all sides for the cordial way in which they helped along the making of acquaintances and the firmer bonding of old ties among the automobilists of western Pennsylvania. The dinner given by the newspapers to the contestants and their friends Tuesday evening was followed by a banquet to the contestants Friday evening. At the latter several of the city officials were present and experiences were "swapped" for several hours, over a choice menu that was evidently relished.

No serious accidents occurred on the run. Tire troubles and upsets, the latter due generally to ignorance of the routes, were the worst feature reported. On the second day out L. R. Lorimer, driver of a Chalmers-Detroit, demonstrated that "necessity is the mother of invention." When his tire gave out he bought a bushel of oats from a farmer, crammed the tire full, poured in a pail of water, laced it up and on the swollen grain rode 14 miles before he had to take to the bare rim again. At Washington, a Knox car, driven by W. J. Murphy, was struck by a street car and badly injured, but stayed in the contest. The Corbin, with unlucky "13" tied to it, had all kinds of trouble near Uniontown, but managed to get into running condition again. A country constable near New Castle was bent on showing his authority and caused the arrest of two drivers for speeding. They were promptly released after giving bail, and when the circumstances were explained to the higher authorities the constable's efforts went for naught.

WHY AUTO INDUSTRY DOES NOT RESEMBLE PREDECESSOR

By CHARLES CLIFTON, President A. L. A. M.

IT is frequently remarked by those associated with the automobile business, as well as by comparatively unthinking laymen, that the automobile business will follow in the footsteps of the bicycle business. This statement is generally accepted as a sage prophecy, the unthinking prophet assuming to himself the virtue of wisdom. But the history of the rise and fall of the bicycle business will not be repeated in the automobile industry.

As one of those associated in the bicycle business, and conversant with the history of the transition from the bicycle to the automobile as a means of transportation, I have made a careful study of the problem and arrived at certain conclusions. The only common element of the two industries, aside from each representing a method of locomotion, arises from the fact that the early development of the automobile in a commercial way occurred at a time when the bicycle business, as a large industry turning out a popular product, had commenced to wane, its doom being plainly written. The situation was such that a large amount of capital, energy, producing and selling brains was rendered comparatively idle, and consequently those forces were logically attracted to the automobile business, which had alluring prospects and called apparently for the same essential elements. Thus several of the earlier bicycle makers were pioneers in automobile development; and many mechanics, theretofore engaged in the bicycle industry, being skillful in detail, have in minor capacities aided automobile development in either invention or shop practice. Naturally the automobile attracted to it a selling force, including bicycle dealers. The latter brought into the new industry a rich experience, which unfortunately too few of them realized to the fullest extent, particularly as to the proper function of adversity. Many of them transplanted lax business methods, extravagances and other undesirable phases. They were fond of referring to the new industry as a "game," as to a sporting event, or a hand at poker. Early the old selling methods began to show themselves in instalment sales and questionable methods of attracting and holding business. But in the new industry these elements were, naturally, short-lived.

Many people are prone to say that overproduction killed the old bicycle business. But if they would reflect on the decreased number of wheels in use, I think the answer is obvious. The bicycle was comparatively short-lived on account, in my judgment, of its own limitations. In its day it was regarded as a wonder of convenience in the solving of the essential transportation problem of how best to accomplish a given distance on common roads. It also had the fascination of a healthy outdoor exercise. But it always involved more or less hard work, more or less of the discomforts of the road, and always the limitation of the rider. It, moreover, did not admit of discrimination whereby the love of display, the superiority purchaseable by money, or the essential comfort of the individual could be expressed.

As the result of the expenditure of an enormous amount of money and work by the American pioneer makers, nearly all of whom are members of the Association of Licensed Automobile Manufacturers, the automobile as a means of transportation has become a part of our national life. It is rapidly supplanting the older forms of individual mechanical locomotion; and will endure because it not only supplants, but far surpasses, anything of its kind we have ever known. It will not decline, but grow, because ever since civilized man has been obliged to move from place to place, for pleasure, convenience, or profit, he has had to use the horse, the mule, or the camel, with much limitation in point of distance and speed, and at all times with uncertainty. The new means of common road transportation is untiring and limitless. It has proven itself to be what the people want. It has individuality in form, and variety, and is built to suit any purse.

In the minds of thoughtful people, of those who think conservatively, the automobile as a means of conveyance has but one menace to its supremacy, and that is navigation of the air, which, if successfully accomplished as to safety and economy, will undoubtedly make the automobile in a way old-fashioned. But even when that day arrives, there will still be numberless people who prefer to be on the ground.

HOW MUCH DOES AUTO WEAR OUT ROADS?

BY invitation of the executive committee of the American Automobile Association, Logan Waller Page, director of the U. S. Office of Public Boards, in the Department of Agriculture, was present at the meeting Tuesday at national headquarters, 437 Fifth avenue, New York City. The result was a decision to hold, probably in June, a series of severe tests to determine: First, just what damage the automobile does to the road surface; and, second, what will be the best measures in road building to prevent the breaking up of road surfaces from constant automobile traffic. Under the auspices of Director Page tentative tests of this character recently took place on a special road near Washington, controlled by the War Department.

"The object of the coming tests," said Mr. Page, "is to get at facts. So many theories have been advanced regarding the causes of road damage by motor cars and the best preparations to preserve these roads that it is high time to ascertain the real truth of the situation. At these tests all of the State Highway Commissions will be invited in addition to the County and local Highway Commissioners where the tests are held. An exhaustive report will then be made, which will be sent to all of the legislative bodies throughout the country and others interested in the good roads question."

The executive committee authorized the tests and referred the matter to the Good Roads Board, of which George C. Diehl, of Buffalo, is chairman. If satisfactory roads can be found, the test will be held in the vicinity of New York.

In the tentative specifications drawn up, it was agreed that there should be two stretches of macadam road, one about three miles long, practically level and with as few curves as possible, while the other should be a road of a similar character about one mile long with a grade of about 6 per cent. Twelve automobiles will be used, four being light high-speed cars, preferably stripped for racing, four touring cars, and four heavy limousine cars.

In the opinion of the committee the trials should be made as follows: On a straight, level course, two miles from the start 400 yards should be measured off and an apparatus arranged for measuring the speed. At the beginning of these 400 yards four high-speed cameras will be stationed to take right angle pictures. A second station will be placed 100 feet farther on, and a third station at 200 feet. The cars will go over this 400-yard section at speeds of 5, 10, 15, 20, 25, and 30 miles per hour, and in regular increments of five miles increased until the maximum speeds are obtained. On the 6 per cent. grade the cars will go up the grade at maximum speeds and down a grade at approximately the same speed, coasting.

In addition, it is also proposed to hold a test over a road with the surface being bound by a dustless preparation.

At the executive committee meeting over which President Speare, of Boston, presided, there were present: Samuel A. Miles, N. A. A. M.; E. P. Chalfant, A. L. A. M.; Alfred Reeves, A. M. C. M. A.; W. E. Metzger, L. J. Powers, Jr., and Secretary F. H. Elliott.

The committee voted to recommend to A. A. A. clubs the week beginning June 1 for orphans' day outings.

The Hermitage Automobile Club, Nashville, Tenn., and the Tampa Automobile Club, Tampa, Fla., secured membership.

Automobile Gasoline and Other Available Fuel

Part IV

By Thos. J. Fay

ORDINARILY, in view of the proneness of automobile gasoline to enter the cylinders in liquid form, the need of quite a length of tubing in the make-up of the carbureter manifold would seem to be an actual necessity. Since the gasoline enters the intake as a liquid, and since the amount of heat available in the air that enters, is not enough to assure vaporization, the greater the length of the manifold, within certain limits, the greater will be the chance of vaporizing the gasoline, since some heat will pass through the walls of the manifold, especially after the motor heats up, because some of the heat will be communicated to the entrained liquid in the mixture, while in the manifold. Then there is the problem involving the delivery of an equal weight of mixture to each of the cylinders; if the mixture is not a homogeneous gas there is small chance of delivering an equal weight of the same to the respective cylinders for the reason that the question of condensation, together with the mechanical separating out of the unvaporized gasoline, in a manner not likely to be uniform in the several cylinders.

In a measure, then, this question of a uniform weight of mixture to the respective cylinders cannot be brought about unless the mixture is free from gasoline in the liquid state. All that is

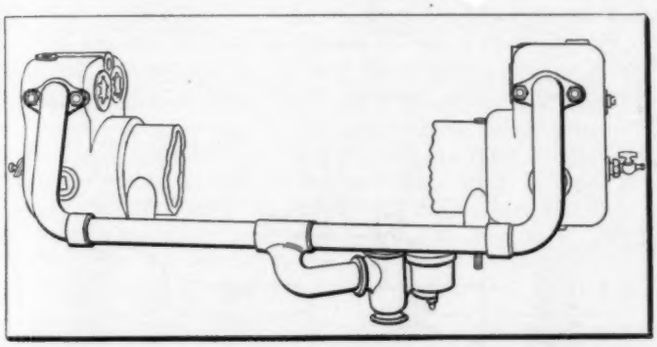


Fig. 11.—Good practice in manifolds for double-opposed motors, showing connections on one side of motor for both cylinders.

wanted in the cylinders of a motor is a fixed amount of homogeneous mixture, the same for each of the cylinders, under like compression and fired at a common angle of advance. On the face of it the mixture must be made, and up to the standard, before it will be profitable to talk about its used and if it is not uniform, equality of distribution will be quite out of the question, so that on the whole the principle problem lies in the process of carburetion.

There Is a Story Connected with the Intake Manifolds.—If the mixture from the carbureter is in the right proportion, and provided entrained gasoline is done away with, it becomes a question of the right distribution of the same to the respective cylinders. In a single-cylinder motor it would seem as if the problem would present itself in the most simple form, and such is the case provided the manifold is of adequate area, and if the hydraulic grade is toward the carbureter. That the manifold should be of some length seems to be a settled requirement, but there is a limit which must not be exceeded if it is true that motors must crank without much, if any, priming, and if the gasoline in the fuel is to be enough and uniformly provided.

In many cases, and in the past in some schools of design, it was assumed that the carbureter should be as near the cylinder as possible, and when the same was placed at a distance it was regarded as bad practice. The area of the manifold was generally increased with the hope that losses would be minimized, but the results did not always show that the practice was a good one, and in the long run it was considered that the area should relate to the valve area, or better yet, to the piston displacement of the motor. Why this is true was not well stated, but experience has taught that the mixture is better when the conditions

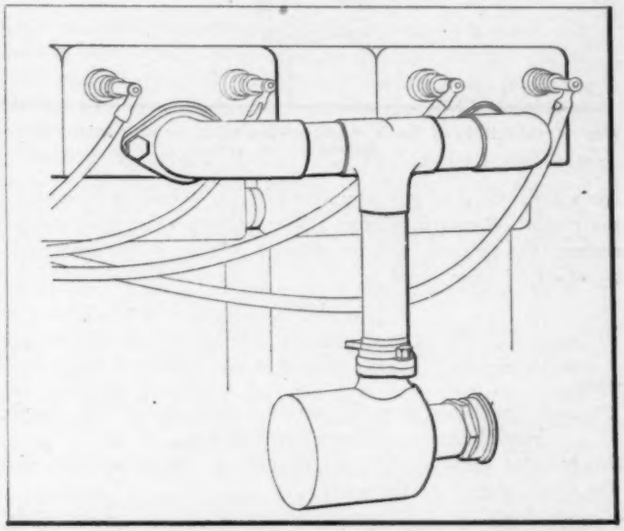


Fig. 12—Make-up manifold showing right-angle turns, involving a raiser and two branches.

that obtain take into account the lack of imperfect carbureter performance. In some cases it was the practice to consider that the intake manifold was really a part of the carbureter, in that vaporization must take place therein, if this important part of the performance does transpire outside of the motor cylinders, which is a moot question, in these days, due to the properties of automobile gasoline, considering the lack of volatility, as indicated by the boiling point of the same, which has been shown to be above the boiling point of water, for the most part.

That there is a happy medium, which depends upon the carbureter used, and the characteristics of the motor in each case is the one conclusion that would seem to stand the light of systematic investigation, and that the rules should not be applied too generally is also true. If, in a single-cylinder motor, the area of the manifold is one-quarter of the area of the piston, and if the length is four times the stroke of the same, it is then that the mixture will be allowed to rest in the manifold

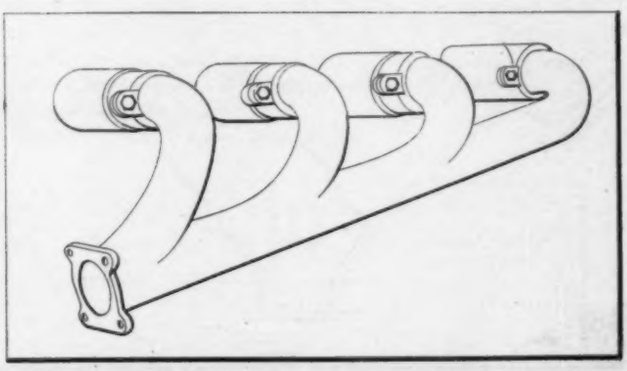


Fig. 13—Manifold so contrived to assure equal distances for all cylinder-ports from depression chamber in carbureter.

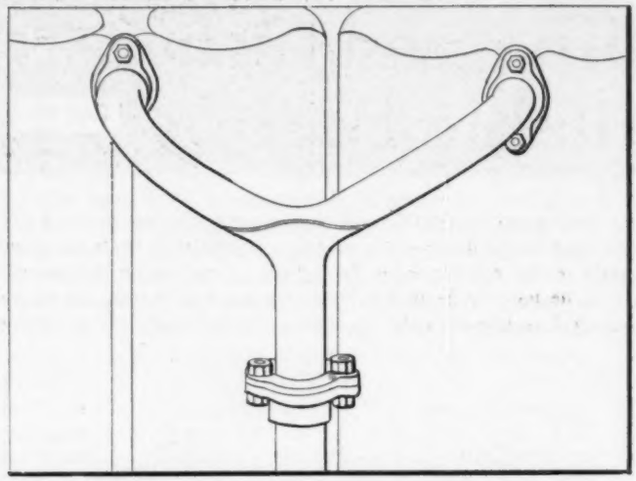


Fig. 14—Manifold of the Y class, with a long, slender raiser and easy bends at all points.

for a time equal to one complete cycle in a four-cycle motor. If the motor delivers maximum power at, say, 1,600 revolutions per minute, the mixture will be allowed to rest in the manifold for a period of time equal to:

$$t = \frac{S}{60 \times c} = \frac{1{,}600}{60 \times 4} = 6.6$$

when,

t = ratio of time that the mixture will lie in the manifold, considering a single-cylinder motor,

S = angular velocity of the crankshaft in revolutions per minute,

c = cyclic period of the motor.

NOTE: During one-quarter of this time the mixture will be enroute to the cylinder, during which period the mixture will not actually lie still in the manifold.

In a single-cylinder motor it is not difficult to regulate the volume of the intake manifold in relation to the piston displacement, but when the number of cylinders are increased the problem becomes more complex. If the relation of the manifold to the piston displacement is not maintained, the torque of the motor may fall off as the speed increases, which is what happens, but not at the same point in the piston speed in all makes of motors. Fig. 11 is illustrative of fairly good practice in two-cylinder motor work, in which it will be observed that the intake is long and slender and the connections in the cylinders come in such a way that the distribution to the respective cylinders is about equal. That the distribution should be so is one of the points to be made, and it certainly is worth something to be able to readily remove the manifold if, in service, it becomes desirable to do so. In this example the hydraulic grade is greater than the net requirement, due to the desire to clear other parts of the motor; this is not necessarily a fault, and it may be that

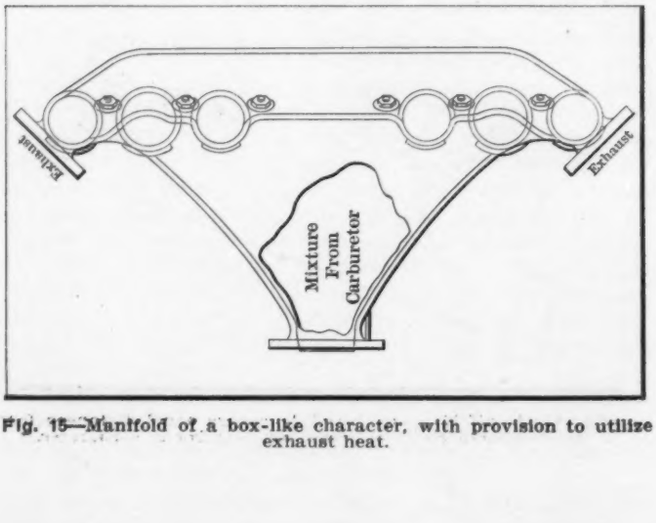


Fig. 15—Manifold of a box-like character, with provision to utilize exhaust heat.

it is an advantage to have the mixture travel through a vertical distance, with the hope that some of the entrained liquid will be weeded out by the gravitational process.

As the number of cylinders are increased, the practical applications become more diversified and there is one more point to be made in that the several methods in vogue seem to work, each in a way to satisfy the needs of the occasion, hence the only question is: Can the trend be picked out of the flock, and has it an upward tendency?

Some Methods in Vogue with Four Cylinders.—However light air may be, even so, it weighs something, and inertia has to be taken into account. When the stream of gas is in motion its tendency is to remain in motion, and to change direction, without suffering a detriment, requires that the conditions be right. The first principle of good designing has for its basis the form under which no change in direction will be required, but if it is the purpose to abandon this principle, then the wise plan will lie

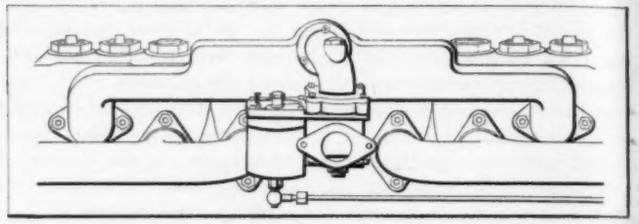


Fig. 16—Enlarged T-shaped manifold, with rather abrupt reductions in the lateral portions.

in having equal and opposite forces, so that the ills of the scheme will not be transfered to the motor.

Fig. 12 offers a plan in which the manifold for the intake is made up, and owing to the form of construction, the bends are right angles. This manifold consists of a raiser and two

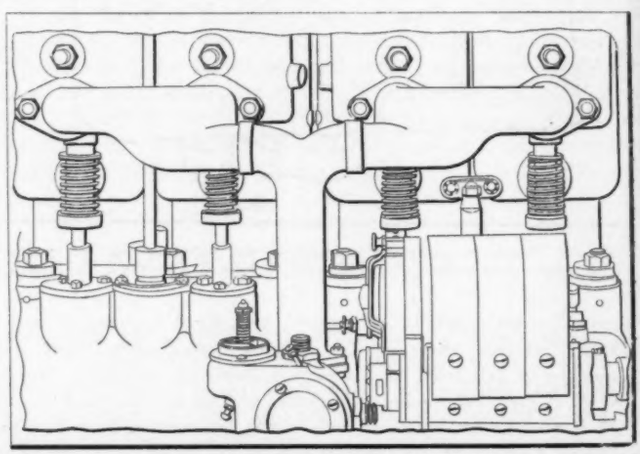


Fig. 17—Another manifold, differing in detail from that shown in Fig. 16, with easier bends from the raiser.

branches, each of which leads to twin cylinders. Considering the usual order of firing a four-cylinder motor, the gas will be sucked into each branch alternately, and that inertia will rob the mixture of its accustomed density is believed. The two arms of the manifold are horizontal and the result is that the hydraulic grade, that retards migration in the direction of the cylinders, is not taken advantage of.

As a refreshing diversion Fig. 13 is offered to utilize the benefits of a hydraulic grade, and tap the mixture off to the respective cylinders without changing its direction and to the extent possible, have all the cylinders the same distance from the carbureter. Considering "individual" cylinders, this manifold lends itself extremely well, and it will also look good when the casting is well made, which it can be, of aluminum.

If siamesed cylinders are used, the same result will be due to the use of a manifold as shown in Fig. 14, in that the carbureter is well below the valves of the motor and the Y is with long and

slender branches, emanating from the raiser, at a low point. If there is any trouble attached to this scheme, it may be traced to the ports, within the cylinders, rather than to the manifold. Still another plan is disclosed in Fig. 15, involving a Y-shaped manifold with a casting of a box-like character, possessing no dividing walls, excepting those which separate the mixture from the exhaust gases that enter a cored portion of the casting, near the cylinders, high up, for the purpose of aiding in the process of evaporation. In view of the large amount of gas that can be stored in the space afforded it is likely that benefits follow its use, although, in the absence of exhaust heat, the space might be regarded as excessive.

Fig. 16 shows still another way, in which the enlargement is

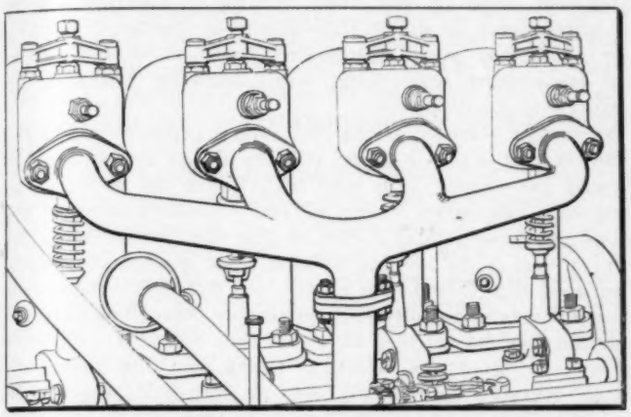


Fig. 18—Manifold for individual cylinders, on a four-cylinder motor, with easy bends, without change in direction of the mixture.

above the raiser although a part of it. This manifold is used on individual, four-cylinder motors, and it should be free from inertia trouble, even so there is danger of other complications in the absence of good carbureter work. This manifold does not offer a large surface for the transfer of heat, which is not a necessity if the carbureter is so devised that the mixture will be in the vapor state, free from entrained liquid. Fig. 17 is of another manifold that belongs to the same school, the only difference being that the enlargement is above the common level of

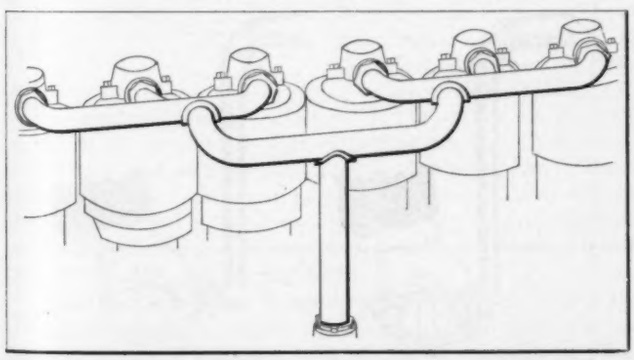


Fig. 19—Manifold for a "six" in which the gas must change direction, thus involving inertia, to some extent.

the portion that branches out to the cylinders. In this case the manifold is devised for six cylinders, and it seems to be a very good plan to get away from the troubles that attend the delivery of mixture to a "six." The hydraulic grade of the branches is not pronounced, but it is not always necessary to have the difference in level so very great. From the simple Y to Fig. 18 is but a step, probably right in that the mixture is not required to change direction, and a neat appearance attends the use of this class of manifolds.

When the plan, as shown in Fig. 18, is applied to a "six" it is not quite so handy, and it may be that it is attended by a certain amount of inefficiency. Fig. 19 is offered as illustrating the point to be made, and as will be observed, if gas inertia amounts to

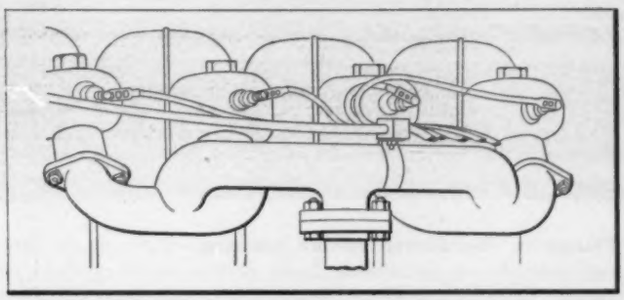


Fig. 20—Manifold, with an attempt to balance inertia forces, with easy bends as well.

anything of practical importance, whatever it does represent will be present in this class of manifold. In this case the gas has to go in the reverse direction to get to cylinders Nos. 3 and 4, while the distance to Nos. 1 and 6 is very great in comparison, although the direction is common to the general trend.

The Method by which Inertia Forces Are Balanced.—In contrast with the plan as shown in Fig. 19 the manifold depicted in Fig. 20 is offered, portraying an effort made to balance the forces due to inertia, in that the laterals leading to the respective cylinders are so connected that the gases will have equal difficulty in all directions. This is probably a very good plan and the reports in practice lend substance to the opinion.

As against this is the scheme depicted in Fig. 21 of a manifold for a "six" in which the pressures of the gas streams are equalized, although it is true that the flow is not in one (common) direction. In this case it is obvious that the designers were alive to the trouble attending the use of the manifold shown in Fig. 19, and it is a reasonable assumption that this way of equalizing is well worth the difference in cost of material. Moreover, the surface offered for the transfer of heat is a maximum, and this is also in the right direction, in the absence of perfect carburetion.

Proper Length of the Intake Manifold.—Considering the presence of carbon in motor cylinders as largely due to unvaporized gasoline, before the fuel enters the cylinders, which carbon is due to the breaking down of the gasoline structure, under the action of heat, in the absence of a right distribution of atmospheric air, rather than to a deficit of oxygen as respects totals, it is reasonable to assume that the manifold, from the carbureter to the cylinders, is, properly speaking, a part of the carbureter, and that the length of the manifold should be such as to do the most good, and that the gasoline, as it is sucked out of the nozzle of the carbureter, should be afforded every opportunity to vaporize. If the manifold is of the required length and if heat is applied to the mixture, through the walls of the manifold, at a constant (desired) temperature, it is then that the manifold becomes a part of the carbureter rather than a connection of convenience, as it is mostly regarded. That the shape of the manifold will influence the situation is rather to be expected. and in conclusion, strange as it may seem, it is better, in all probability, to have the manifolds with a limited area, rather than to employ them with so large an area that the friction factor will be a minimum. It is even possible to consider that benefits will follow a passageway which is tortuous and winding, provided the carbureted gas travels in one direction only.

(To be continued.)

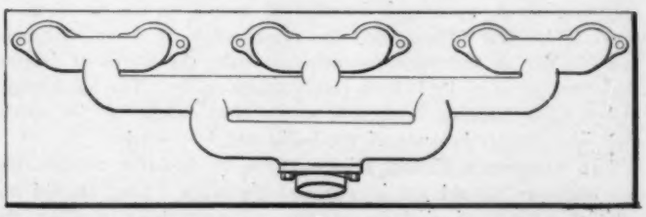
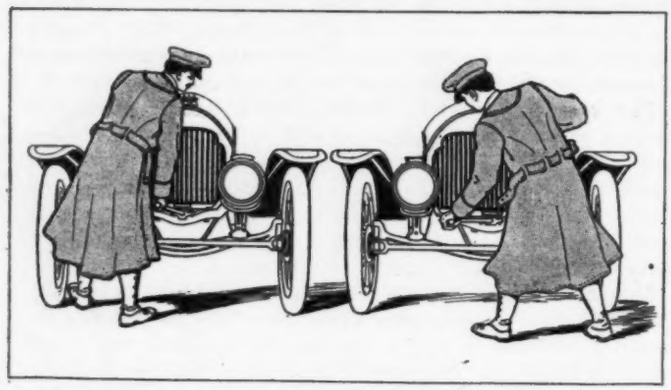


Fig. 21.—Compensating manifold for a "six," wherein the forces due to inertia are but slight and balanced.

Information for the Man Who Drives

Things to Remember About Starting.—One of the first things that the novice should learn is the proper method of starting. This, too, should be learned in a safe way, for there are methods in daily use which are not safe. Take, for instance, the ordinary way of cranking the motor. Most motors turn clockwise, that is, from left to right. Then, in starting, the



Shows the Improper and Proper Methods of Starting.

ordinary driver, who has just "picked up" driving, grabs the crank with the right hand and pulls on it until the top is reached, then pushes it over the center and the motor either starts or it does not. In the latter case he continues to pull it around. This method, whether right or wrong, may possibly work on a small engine, but wait until this plan is tried upon a large motor.

The driver, to crank in this fashion, must stand at the left and between the center of the car and the wheel or fender. At the top of the stroke, which is also the top of the circle of revolution of the crank, he is in a very awkward position. Worst of all, his arm is extended stiff and a back kick will operate directly against it. In this manner the arm is liable to be broken, or at least badly wrenched. In addition, the awkward position is such that the weight must be concentrated upon the right foot in order to balance. The least tendency toward backfiring is liable to destroy this balance, so that the driver may fall over. The writer has seen men start a car in this fashion, and finding the engine turn over more readily than they had expected and provided for, the very effort of starting was sufficient to upset their balance and they fell over.

With left-hand starting, on the other hand, these three objections are obviated. As the turn of the crank is away from the center of the car, its movement may be counted upon to give the driver more room in which to stand.

Instead of the last and hardest part of the cranking being in the nature of a push with the arms stiffened, with left-hand starting, it is more of a pull with the elbow flexed and therefore free. If the engine back fires it is easier to let go of the spinning crank, because it is exerting a pull on the hand, not a push as before. Then, too, the substitution of a well-balanced position for an awkward one helps to make the action of freeing the crank so as to let it turn freely much easier. The advantages of left-hand starting, then, sum up as: less danger to the operator's arm, easier balance of the body and less work.

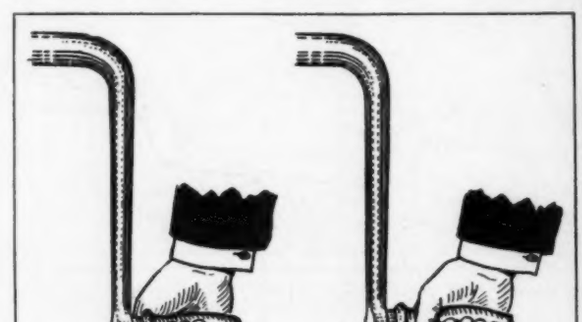
The Amateur's Useful Diary.—One of the first things that the beginner should get is a motorist's diary. This should not take the form of a daily register of everything, making the work of keeping it a hardship. But on the other hand, it should contain a record of the time at which the principal things happened. Thus a form of mileage recorder should be secured and a note made of the mileage at which things occur.

So the diary should contain a record of the distance covered when things occur. It ought to include in this way the punctures, new treads or new tires, charging of batteries, grinding of valves, fresh oil in the transmission or crankcase, examination of various parts, replacements due to wear or accidents and many other little things worth knowing afterward, but forgotten at the time.

By keeping a record of this sort (and a person would be surprised how little time it takes) one can always answer questions directly and exactly. The total life of tires can be found, for instance. The writer knows of one prominent motorist who found out from a diary record of this sort that beyond a certain mileage it did not pay to have tires retreaded, no matter how good they looked. So he fell into the habit of taking the shoes off before that distance and sending them to be retreaded, although they did not then look as if they needed it.

How to Hold the Starting Crank.—In the apparently simple operation of cranking over an automobile engine there are many little points for the novice to consider. Among these the most important are those which make for increased safety. Thus the seemingly elementary action of grasping the crank handle is susceptible of two methods—one, right and safe, the other, not safe, and therefore, not right.

Ordinarily the driver will grasp the handle with a firm grip about as he would grasp a baseball bat; that is, with the fingers wrapped around it in one direction and the thumb around it in the other. Whatever method of cranking is employed this is wrong, for if the motor backfires the position of the thumb prevents letting go, at least quickly enough to be any service.



How to Hold the Crank, Correctly and Incorrectly.

The proper way, as the cut shows, is to take hold with the fingers around the handle, but loosely, never tightly. Then the thumb should not be used at all, but should be folded back alongside of the first finger and out of the way. The whole work is done by the fingers, and if anything happens the backward action of the crank simply opens the closed fingers and no harm is done. This particularly holds true when taken in conjunction with left-hand starting. In that case the latter and dangerous part of the starting action is a pull toward the operator. The arm is in tension, in which the greatest strength can be exerted. So, if the engine backfires, a person just stands still and holds the arm taut, while the backward action of the engine opens the hand and then rotates harmlessly.

Ready Remedies for the Roadside

WHILE the majority of automobiles are reliable and will run for quite a considerable period without the need of repairs or adjustments, still even the best machinery will sometimes need repairing, and the autoist who exercises his ingenuity will not only be able to continue his journey, but will save the cost of a repair bill and sometimes the ignominy of being towed behind a farm wagon. Repairs that call for experts' services and machine work cannot be performed on the road, and would be of no value to a stranded autoist, and are therefore not given here.

Repairing Leaks in Radiators.—Honeycomb radiators are given to "weeping" or leaking at the ends of the cells, and if a radiator plug is not at hand a substitute can be found in passing a long, thin bolt through the defective cell, fitting the bolt at both ends with leather or rubber washers or tire patches, backed with strips of metal, and screwing the nut down until the leak is stopped. If no such bolt is obtainable, a stick can be whittled to take its place and the washers retained by means of copper wire, as in Fig. 1. When a leak occurs inside one of the cells, a square peg cut from soft wood and covered with a piece of handkerchief smeared with white lead can be used as a stopper. In all of these operations only a moderate amount of force should be used, as the tubes are easily buckled. Leaks in gilled-tube radiators can be stopped by applying a rubber patch held in place by tire-tape and wire.

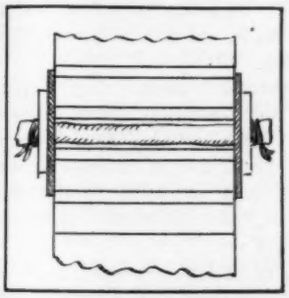


Fig. 1—Section of radiator showing washers held by wires on stick, to stop leak.

Twine Can Be Put to Various Uses.—Speaking of washers, when a lock-washer is missing a fine substitute can be made with twine forming a loop slightly smaller than the outside diameter of the nut and wrapping twine around this loop, forming a "grommet," as the sailors call it. When the nut is screwed down on the grommet it will be held as firmly as if fitted with a nut-lock and will stay tight until the twine rots. Autoists should carry at least some 15 yards of twine in their kit, as it can be put to various other uses about the car, such as reinforcing weak spots in tires, protecting chafed wires and binding together split sections of the steering wheel.

Treating Circulating Pump Leakage.—Leakage of the water circulating pump occurs usually where the cover joins the pump body by means of a ground joint. A gasket of stiff paper dipped in lubricating oil inserted between the cover and the body will remedy this, the gasket being easily formed with the pocket knife. Asbestos cord is better than paper when treated with vaseline and graphite, but few autoists carry it. For leakage around the pump spindle the cord can be used, pushing it in with a piece of strip brass or other soft metal so as to avoid scratching the shaft. If no asbestos cord is at hand one of the strands of a piece of hemp rope treated with tallow will also answer.

When the Gasoline Pipe Gives Trouble.—When the gasoline pipe breaks, a short piece of rubber tubing forced over the broken ends will do for a short time, but as gasoline attacks the rubber too much dependence should not be put on it and the pipe should be brazed at the nearest shop. If the hole is only a small one a piece of soap squeezed in and held in place by a soaped rag and string will serve if gravity feed is used. For pressure tanks a piece of rubber tubing split lengthwise and well soaped will temporarily stop the hole if wired tightly around the pipe, but the pressure must be kept low, otherwise the rubber tubing will be loosened and the leaking commence again. A leak is sometimes hard to locate, but if the pipe is rubbed with lather and blown through, the leak will be shown by bubbles.

Loosening Nuts and Screws.—Refractory nuts can be loosened by heating them with a red-hot piece of iron for a few minutes, when they will come off readily. If a screw cannot be loosened by the screwdriver the latter should be pressed hard against the slot in the head of the screw and turned by a monkey-wrench applied to the flat part of the blade. A tight radiator cap can be moved by winding a large amount of string or cloth tightly around it.

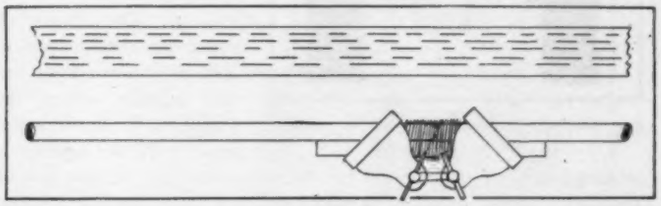


Fig. 2—Repaired drag-link, showing hand vises in place.

Broken Rods and Links Can Temporarily Be Mended.—The repair of a broken link in the steering gear can be effected by placing the broken ends together and fastening a rod or a piece of gaspipe against the link, winding the wire the entire length of the rod. If two hand vises can be obtained they can be attached as shown in Fig. 2. The rod is tied to the joined ends of the link with wire and the hand vises screwed down on both link and rod. Anything but slow running with either of these repairs is out of the question. Any other rod can be similarly repaired provided there is room for the pipe or the vises alongside of it. Wire cable can be substituted for brake rods, but the brake must be kept clear of the drum by some means when not in use.

What to Do When a Chain Breaks.—If a chain breaks and the autoist has no spare links the car can be driven on the other chain after the idle sprocket is secured so that it cannot revolve. An easy way to do this is to pass one end of the chain around the sprocket, fastening the end link to the chain with wire and attaching the other end of the chain to some part of the car, such as a running board bracket. On shaft-driven cars the universal joint pins sometimes work loose and drop out,

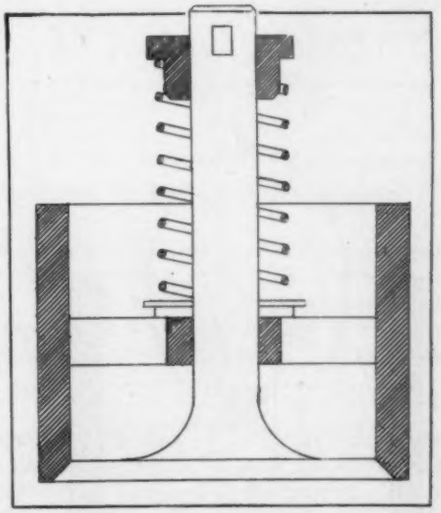


Fig. 3—Valve spring strengthened by inserting metal strips

but a temporary pin can be made from a bundle of wire or a small chisel held in place by wires or twine.

Strengthening Weak Inlet Valve Springs.—Mechanically operated inlet valves have superseded those of the automatic type except for two-cylinder opposed motors fitted in light runabouts and motor buggies. There is a surprisingly large number of these vehicles in service, and as at some time or other the inlet valve springs become weak or break, the following suggestions will not be out of place. If the spring is weak it can be strengthened by inserting strips of brass or the blade of a knife broken off for the purpose between the spring and the spider of the valve cage, as in Fig. 3. In thus strengthening a spring it would be well to test it against another inlet valve spring by placing the ends of the stems together and pressing the cages toward each other as in Fig. 4. The strips of metal can then be put in until the valves both unseat equally, when the springs will be of equal power. If the spring is broken pieces of corset steel can be substituted for it, one end of each steel being notched to straddle the spider arm and being fastened to the collar wedge by wire passed through a hole near the other end as in Fig. 5. Even if the power of the steels is not as great as that of the regular spring the motor will run well enough to bring the car home. A corset-steel-fitted inlet valve was used on a runabout for four days while waiting for a new spring from the factory and was apparently capable of giving some more service when taken out.

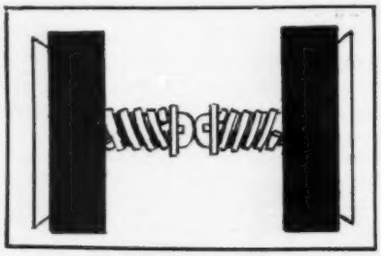


Fig. 4—Method of testing valve springs.

Substitutes for Trembler Blades.—Corset steels can be used as blades for trembler coils, cutting them to the proper length and riveting the platinum button from the broken blade through the hole which is punched by the manufacturer near each end. After making the holes for the retaining screw the blade is complete. A piece of a clock mainspring will also make a good blade.

Remedying Squeaking Springs.—A frequent source of annoyance is the squeaking that indicates that the leaves of the springs require lubrication. The axle is jacked up until the wheels are clear of the ground and the springs quite flat. Then with a chisel or screw driver each leaf should be forced apart gently and a mixture of vaseline, oil and graphite spread between it and the next leaf with a knife or flat steel rule. Where parts are not easily reached by this method they should be squirted with oil. The leaf clips should be removed if necessary to allow of this being done.

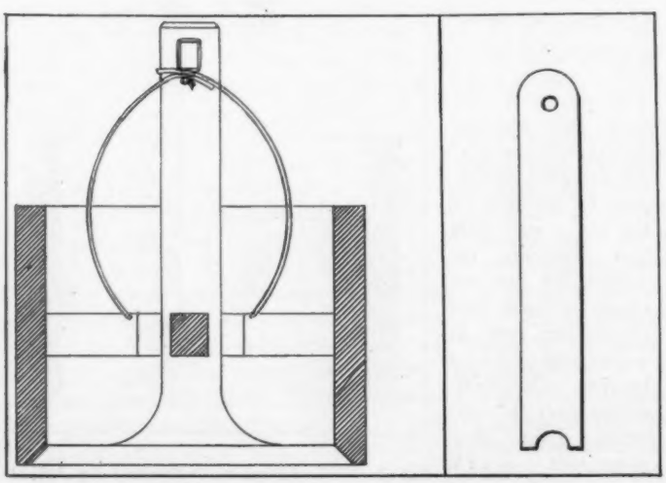


Fig. 5—Corset steels used as impromptu valve springs.

POINTS THAT MAY HELP YOU.

By A. D. HARD, M.D.

There is nothing more exasperating than to get into a small soft place in the road and have the driving wheels spin until the axle rests on the ground and all traction is gone. I used to hunt immediately a farmhouse and get help to haul the car out, but as I do not like to acknowledge dependence on farmers or horses when using an automobile, I have devised the following method of getting out of such predicaments unaided. The material necessary for constructing the device consists of four thick leather straps, 6 feet long and 1½ inches wide, and 26 pieces of hickory wood, 10 inches long, 2 inches wide and ¾ of an inch thick. One-quarter-inch holes were bored at two inches from the ends of the pieces of wood, and the straps riveted to the pieces of wood in such a manner as to make a flexible ladder with leather "rungs," six inches apart from center to center and with 4-inch open spaces between them.

Use of the Strap Ladders.—This gives me two strap ladders, 6 feet long and 10 inches wide. They are snugly rolled up with the strips of wood alternating so as to occupy but little space. When the situation calls for some help to get out of a mud hole I place a trace chain around the rear axle and the frame to prevent the spring expanding, and with the jack under the rear corner of the frame lift the driving wheel up as far as the jack would permit, then unroll the strap ladder on the mud in front of the wheel, with one end under the tread. The other wheel is treated in the same manner, and with low gear the machine will travel over the 6 feet of strap-ladder track with perfect ease. If this does not reach solid ground, I simply repeat the trick until the trouble is passed. This has helped me out of several very trying situations and made me feel independent of outside help, which was very pleasing.

Novel Test for Missing Cylinder.—Frequently my engine misses explosions in one of the four cylinders when under a load, though acting very properly when running free where I can watch it. In order to locate the offending cylinder, I stop the engine and touch each cylinder with the business end of a match. The cylinders which are hot from action will ignite the match, and the offending cylinder will not.

Use Single Tube Tire as Inner Tube.—If you wish to avoid tire troubles you should select a single tube tire of proper size and use it for an inner tube to a clincher casing. If the single-tube tire is too small in cross-section to fill the casing properly, slit an old inner tube around its inner or concave side and place it over the single-tube tire to increase its diameter. Two or even three may be superimposed if needed. Tire lugs will not be needed, and the tire should be pumped up extra tight.

A Priming Kink.—If your motor does not start easily, owing to not getting a rich enough mixture at slow speed of cranking, tie a small bunch of waste with a wire so that it will be close to the air intake of the carbureter. Prime by saturating the waste with gasolene, and the added vapor will make starting easy.

Emergency Filling for Differential Casing.—In case you are unable to obtain oil or grease for the differential casing, beeswax can be used as a substitute, and the car will not skid as much as formerly.

Safe Cranking of the Engine.—The principle involved in safely cranking an engine is to get the explosion when the crank is pulling on the fingers, so that if the kick comes the force will simply pull the handle out of the grasp and not expend its force against the body weight and applied force. Do not attempt to turn the crank all the way around; adjust it to begin against the compression and then give a quick pull upward.

Dry Cells Satisfactory for Ignition When Properly Connected.—Dry cells will give very satisfactory ignition for a four-cylinder motor if you will use four sets of four cells each, coupled in series multiple, so as to get a voltage of only six volts. The secret of light battery consumption, as a rule, is in having the vibrator respond quickly to the traction of the magnet in the coil. The slightest current should open the contact points.

VALVE MECHANISM FOR INTERNAL COMBUSTION MOTORS

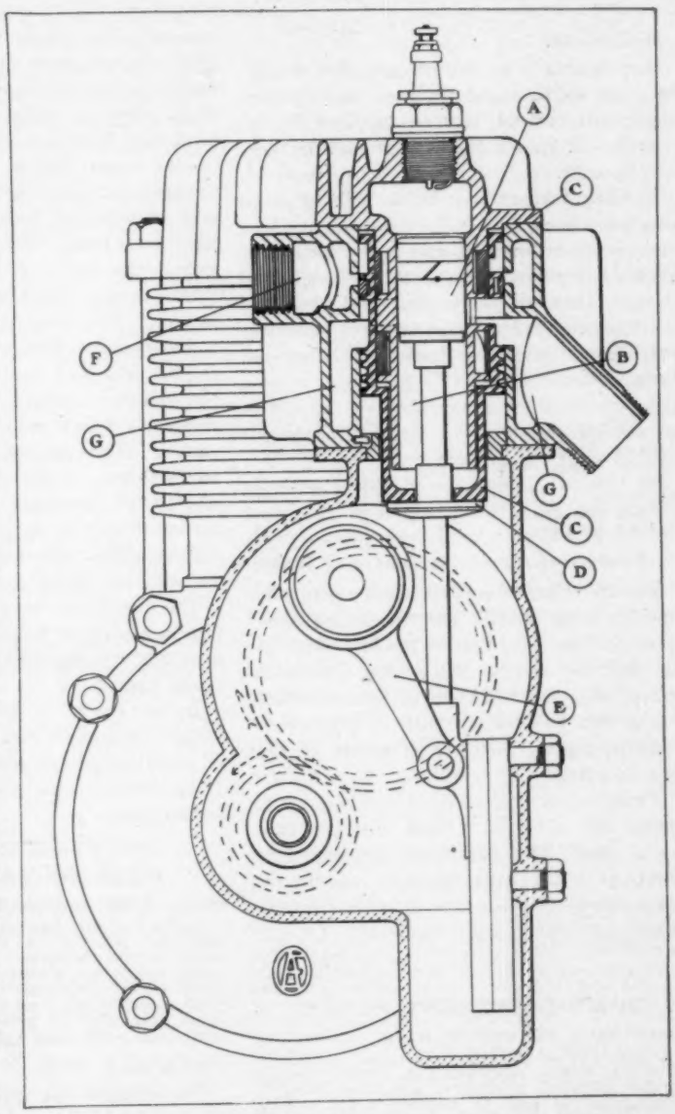
THE majority of internal combustion motors in use to-day are fitted with mushroom-head inlet and exhaust valves working in separate chambers or cages and actuated by cams. There have always been dissenters from this, the received method of valve mechanism, who employ rotating valves, oscillating sleeves and various other devices. Since the demonstration of the commercial success of the Knight motor considerable interest is being taken in such mechanisms and a number of new devices have appeared. The most recent of these is designed to do away with cams and separate valves for both inlet and exhaust and substitute a piston and sliding sleeve which will perform the functions of both valves. In the following description of the mechanism and its action which is that given by the inventor Alden E. Osborn, of New York City, some of the statements have not been proved, as the device is as yet in the experimental stage. He says:

"This valve gearing was invented and designed by me after considerable study and planning of several other forms, and is believed to be new and to possess advantages not only over the present cam-operated valves, but also over other forms of mechanism that have been brought out. The gear shown in the drawing consists essentially of a small piston operating in a cylinder having communication with or opening into the combustion chamber of the motor and combined inlet and exhaust passages in this valve cylinder which are uncovered and put into communication with the combustion chamber by the movement of the piston valve away from the combustion chamber. A means for actuating the piston valve is provided whereby it is given a relatively slow movement at one end of its stroke and whereby it moves faster in one direction than in the other and a valve for throwing the passage above referred to into communication with either the inlet or exhaust chamber of the motor is also fitted.

"In the drawing the main or piston valve *A* is shown in the position it assumes when the motor piston is at the top of the compression stroke, the passage *B* controlled by this piston valve being in communication with the exhaust chamber by the forcing up of the distributing valve *C* by the collar *D* on the piston valve stem. The main valve is actuated from the half-speed shaft by means of a connecting rod *E* pivoted directly on the lower end of the valve stem below the half-speed shaft. The connecting-rod pivot is considerably offset, and this together with the length of the rod, length of valve stroke, size and position of ports and position of distributing collars are so proportioned as to give the correct timing. When the main valve reaches nearly to the bottom of its stroke and the motor piston the end of the exhaust stroke it comes into contact with and forces down the distributing valve thus closing the exhaust *G* and opening communication with the inlet passage *F*, which remains open until the distributing valve is again raised by the collar on the piston-valve stem.

"The distributing valve need not be a very close fit and would be a very light shell both to minimize the shock in removing it and to enable it to be held in place by the ring friction. It should be understood that while this method of operating the distributing valve by the same means as the main valve is new and is very simple, and, it is believed, would be perfectly satisfactory, other methods, such as the operation by a separate crank mechanism or the use of a rotary distributing valve having suitable ports and rotating around the main valve at a speed sufficient to give the correct timing, may be used.

"In cases where high power and efficiency are especially desired the main valve may be in the cylinder head and work downward, thus giving a spherical combustion chamber and a particularly free passage for gases. The cooling of the valves would not present any difficulty, as the only part of the piston valve subject to the hot gases is the top, instead of both top, underside and stem as with the ordinary exhaust valve, and the fresh charge passes through all parts that would be heated, greatly assisting in cooling them. It is believed that this valve system is particularly suited for use with air-cooled motors, it being shown in connection with a small motorcycle motor, but its cooling qualities would be very advantageous in connection with other cooling means. For water cooling suitable passages would be provided around the valves, while in very large sizes the water could even be circulated through the valves themselves. From the foregoing it will be seen that this valve mechanism is of extreme reliability and simplicity, does away with all springs, cams, rollers, etc., eliminates all adjustments, noise and necessity for valve-grinding or other attention and gives a very desirable quick port opening and free passage for both inlet and exhaust gases."



Osborn Valve Mechanism Applied to a Motorcycle Motor.

When Emery Paper Is Forgotten.—Should the autoist neglect to carry emery paper or a swiss file, and the spark plugs need cleaning, a substitute can be found in the igniting composition on a box of safety matches. This can be used in the same manner as the emery paper and, while not quite as good, will clean the plug quite effectually.

Letters Interesting and Instructive

COST OF RUNNING A CAR.

Editor THE AUTOMOBILE:

[1,863.]—I am considering the purchase of an automobile, and, being a man of moderate means, I wish you would give me some information as to the cost of running a car. I do not care for a large car nor a fast one, in fact I would prefer a light slow car to learn on, particularly as I have been told that extra speed costs more.

H. BENSON.

Shenandoah, Ia.

Any figures as to cost of operation would be guess work, unless a person was able to quote you actual figures supplied by a friend, well-known for both careful driving and honesty.

We are fortunate in being able to give you some such figures. These were, however, made in England, and in the consideration of them you should take into account the fact that the roads over there are better than the average roads here. Second year's use of a single-cylinder 6-horsepower Jackson car:

Item.	Cost.	Cost per mile.
209 gallons petrol.....	$63.68	$0.0122
Repairs, grease, oil, etc....	131.81	.0252
Special items, new lamps, etc.	31.10	.0060
Insurance	35.82	.0069
License for car.....	10.23	.0020
Driving license.....	1.22	.0002
Total	$273.86	$0.0525

The above represents the total expense of running 5,210 miles. The driver and owner of the car, says that in the two years he has had the car, he has driven a total of 10,109 miles at a total cost of $512.34, which works out $0.0506 per mile. The above itemized figures then err, if at all, on the side of safety.

These figures selected, at random, so to speak, and showing a total cost per mile for a small light car, such as you would want, of 5 1-4 cents per mile, should reassure you on the score of excessive expense, providing care is exercised.

SOME DIFFERENT RULES.

Editor THE AUTOMOBILE:

[1,864.]—Will you kindly publish whatever data you might have relative to the testing of the different grades of gasoline (that is deodorized, 74 and 76 degrees test) in the way of starting motor, economy, and power. What kind of ether is used to increase the power of motor, and what per cent. of ether to the gallon of gasoline. What are the relative merits and demerits in its use. Would you mention the names of reliable cheap air pressure gauges for tires.

S. KNOX.

Woodbine, Md.

The higher degree test liquids are more volatile, therefore they vaporize more quickly. From this it is easy to deduce that, using them, the engine would start more readily. That is, you could start easier and quicker with 76 degree gasoline than with 64 degree. However, this is just a supposition, as there is no more of either 74 or 76 sold. With the liquid now sold, the interval between any two being less, the noticeable difference in starting effort would be less. As to economy, the same remarks would not hold, as given enough heat to vaporize, the heavier gasolines, which would test up lower, say, about 64 degrees, contain a greater proportion of heat units. They would thus be more economical. The nigger in the woodpile is that they are not pure, and the impurities are higher in proportion with the heavier fluids. Also, there is some question about sufficient heat being present to vaporize.

The usual liquids added to fuels are oxygen carriers. Of these ether, picric acid, chlorate of potash, and pure oxygen have been used. The use of any of them except the latter is to be deprecated, as their presence renders the liquid fuel explosive. The majority of them, also, have a detrimental effect upon the parts of the engine and fuel system exposed. Picric, for instance, attacks cast iron. The first noticeable effect is the rapid pitting of the valves. The percentage varies with the one selected. Aside from increased speed and power, there are no advantages. The increased cost of fuel, of maintenance, and repairs, taken with the explosive nature of the mixture, more than offset this.

The absorption of acetylene gas by gasoline is also used to increase the explosiveness, and consequently, the power from the liquid fuel.

By turning to the advertising columns of THE AUTOMOBILE you will find a number of reliable air pressure gauges for tires, from which you can select one that fits your pocket-book.

HOW TO PAINT BRASS.

Editor THE AUTOMOBILE:

[1,865.]—I am having my car painted and told the painter to paint over the brass parts of the radiator. He told me that the paint would not adhere to the smooth brass after being subjected to the heat of running conditions, but would peel off. Is there any way to prepare brass so that it will take paint and hold it permanently?

F. P. WHITTAKER.

Grantwood, N. J.

The painter was right; paint directly applied to smooth brass parts subject to heat will not stay in place. To prevent the peeling action, have the painter apply a very thin even coat of shellac. When this is dry in place, the paint may be applied over it in any number of coats you wish to have. You need have no fear of the paint peeling off, as the shellac will stand a much higher degree of heat than will ever obtain in a radiator, higher than the temperature of boiling water, in fact, before cracking. If you do not wish to apply a large number of coats, the shellac may be colored, so that the brass will not show through it. In this way, the painting can be completed with one or at the most two coats of paint.

USE OF TWO MUFFLERS.

Editor THE AUTOMOBILE:

[1,866.]—Will you please inform me through the columns of "The Automobile" if better results cannot be obtained by the use of two mufflers instead of one on a horizontal motor. Also advise me if better results can be secured by using double-chain drive on a high-wheel auto with 1 1-2-inch tires, or would you suggest direct rear-axle drive?

W. COOPER.

New York City.

If the engine on your car is large enough so that you can spare a little power, two mufflers would reduce the noise very markedly. However, with a properly designed and fitted muffler there should be no necessity for the additional one. All this is said regardless of the type or size of the engine, as the type does not influence the muffling question, while the size only enters in determining the muffler size.

As to the chain versus shaft proposition, the chain is said to have a superior efficiency as a power transmitter, but enclosing it complicates the care and repair of it. The shaft drive, on the other hand, is easily enclosed, and when so covered is clean, quiet, and readily accessible.

A FEW ENGINE QUERIES.

Editor THE AUTOMOBILE:

[1,867.]—Will you please answer the following questions: (a) Which of two engines would vibrate the most noticeably, a four-cylinder 4 1-2 by 6 or a four-cylinder 5 by 5, and (b) which of the two would be most powerful at the same number of revolutions, say, 900 r.p.m., also (c) what horsepower would be considered good with valves in three different positions as: in the head, on opposite sides, all on one side, also (d) what percentage of the actual stroke should the compression volume be? J. M.

St. Paul, Minn.

The force of the explosions vary with the size of the compressed charge, and with the explosion will vary the noticeable vibrations. The size of the charge will be greater with the greater volume swept out by the piston. In the case you cite: (a) this will be 95.4 cubic inches for the 4 1-2 by 6, and 98.2 cubic inches for the 5 by 5. On this basis, the latter would vibrate more noticeably. This is, however, in the nature of hair-splitting, for with as small a difference as this, the difference in vibration could actually not be noticed. All this is on the assumption that the two engines had the same compression. (b) The 5 by 5 would probably develop more power than the other. This is because the bore influences the power as itself squared, while the stroke only enters in the first power. The A. L. A. M. rating for the two would be 32.2 for 4 1-2 by 6, and 40 for 5 by 5. (c) It is not considered that the position of the valves influences the power, although the overhead valve doubtless does to a very slight degree. As between the other two, there is no choice, if power alone is considered. Even with the overhead

valve, this seldom, if ever, is the only thing considered. (d) This varies with the motor, power desired, etc. For a racing motor 1-4, or 25 per cent., would be considered good practice. In ordinary work, 1-3, or 33 per cent., would be more usual. This means 33 per cent. added to the volume swept out by the piston. In designing a motor, the common practice is to figure this so as to get the desired compression. To do this, the formula is used

$$PV^{1.35} = K = 14.7$$

from this, by transformation,

$$V^{1.35} = \frac{14.7}{P}$$

in this P is the desired compression pressure, and V is the ratio of the compression volume to the total volume.

By determining upon the compression, the expression for V is obtained from the above. Then from this, the volume swept by the piston being known, the other volume is readily found, using the equation:

$$V = \frac{\text{compression volume}}{\text{piston volume} + \text{compression volume}}$$

A slight error enters through the use of the constant 1.35, as this has never been accurately determined; however, it is close enough for ordinary work.

MUCH INTEREST IN WELDING.

Editor THE AUTOMOBILE:

[1,868.]—Will you please publish a list of the articles on oxy-acetylene welding or other welding processes which have appeared in the columns of "The Automobile" within the past year? I am very much interested in this subject and wish to read up what has been written on it.

H. M. EAST.

Melrose, Mass.

The following articles have appeared in THE AUTOMOBILE in the past year:

Vol. XVIII, January to June, 1908—"Autogenous Welding in Automobile Construction," pp. 877-879.

Vol. XIX, July to December, 1908—"About Repairing Broken Cylinder Castings," p. 156. "New Method of Autogenous Welding," p. 304. "The General Aspects of Autogenous Welding," p. 781.

Vol. XX, January to date, 1909—"Davis-Bournonville," p. 159. "Commercial Acetylene Company," p. 161. "Autogenous Welding Explained," p. 178. "Autogenous Welding Effective in Repair Work," p. 501. "Repair of Aluminum Castings by Oxy-Acetylene," pp. 655-656.

HOW TO GRIND VALVES.

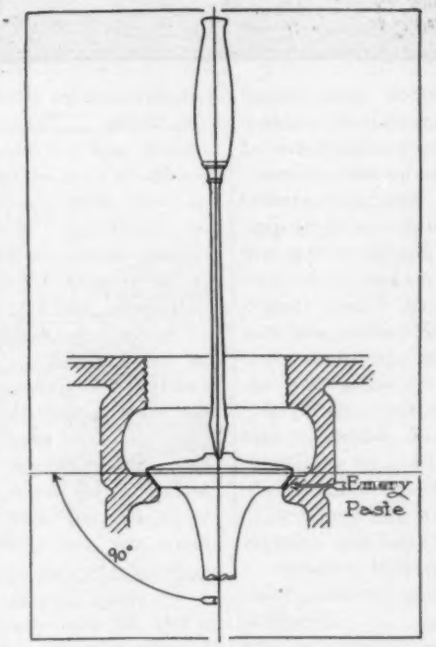
Editor THE AUTOMOBILE:

[1,869.]—I am a newcomer, having recently purchased a car. Some time ago I decided that my valves needed regrinding and attempted to do the work myself. In this I fear that I have done a botch job, for the compression is even worse than before. Will you please tell me how to grind the valves properly?

A. R. SPACKMAN.

Allentown, Pa.

Really, there is nothing to valve grinding except care and the proper materials. First, you will need some very fine emery, the finest you can obtain. Next, this should be mixed to a paste with oil, preferably a light cylinder oil. To use the paste, a screw driver, or if you prefer it, a brace and screw driver bit, will be necessary. Now, have the valve free of its spring, clean the seat off, and spread a very little of the paste over it. Put the valve into place on top of the paste, and with the screw driver or bit turn the valve on its seat about half a turn, then reverse, and turn back half a turn. All the time, pressure must be exerted upon the valve, so that the emery will take hold and cut. Then move the valve around to a fresh position, and repeat the alternate forward and back motions. The first and second positions will have covered the whole circuit, if just a half turn be used each time. In that case,



Showing How to Grind Valves.

the third move should be such as to grind on a space not wholly covered by the previous work.

Beyond this, the only really important point is to have the axis of the valve perfectly square with the seat. If the valve guide has become worn, there is danger of tilting the valve during the grinding process to one side. Then, when in use, it tilts back to the other side and the work of grinding has become useless. There is some danger of grinding off too much. To determine when you have ground enough, note when the pitting has disappeared. After that, grind very little longer before you test the seat. This is done by coating the freshly ground seat with a thin film of red lead, or by smoking it with the flame of a candle. Having thus marked it, set the valve lightly into place and rotate. If you have ground to a proper seat, this rotation will scrape off the lead or carbon used in a continuous ring. It does not matter how wide this ring is, but it must be continuous.

CARBURETER TROUBLES.

Editor THE AUTOMOBILE:

[1,870.]—I have a new automobile, Buick Model F 22-horsepower, on which I had installed a Remy magneto. I find whenever I get in a heavy pull and open the throttle pretty wide, my engine backfires in the carbureter. It never does this on smooth road, although I may have the throttle open wide. When I run on the batteries, I rarely ever have a backfire in carbureter, but when running on the magneto and in a heavy pull, it does backfire. I have used new spark plugs and new batteries, but it doesn't seem to remove the trouble entirely, although it helps a great deal.

If you can explain the cause of this, I will greatly appreciate it. I thought perhaps it was carbureter trouble, but have changed carburetors and still have the same back firing, so I know my carbureter is O. K.

ROY N. CHELF.

Brooksville, Fla.

From the record of your troubles we would have said the carbureter was at fault, but it appears that you have obviated any possibility in that direction. About the only other solution is that the magneto is slightly out of time, say to the extent of one tooth on the driving gear. As the result of this, on slow speeds and even at high speeds with but little load, the effect is not bad enough to be noticed. When working under a heavy load, however, even a slight error in the timing would be greatly magnified. The same results might be caused by the valves being incorrectly timed, possibly by the same small amount, that is, one tooth out of the way in the meshing of the driving gears. In case that a remedy for the trouble does not result from making the changes indicated above, look at your inlet valve springs, or to anything else that could possibly cause the inlet to close late or slowly. Look at the valve seats to see if they are in good shape, and finally read letter (1849) in the April 22 issue of THE AUTOMOBILE relative to the correction of sticking valve stems. If your trouble persists after trying the other remedies, try fixing your valve stems.

MORE RED-HOT PIPES.

Editor THE AUTOMOBILE:

[1,871.]—Will you please publish the following in answer to the letter from J. T. D. relative to a red-hot exhaust pipe (1835)? I have had similar trouble and after much working around and trying of new schemes and suggestions from others, I found that my muffler was clogged, and upon cleaning it, found a little improvement. This was not enough to satisfy me and I continued working on it until I finally decided that the trouble lay in the design of the muffler. This was so designed that there was too much back pressure upon the engine. The result was that it made the exhaust pipe into a radiator by allowing all the heated gases to remain in it. As each fresh supply remained in or was forced in, there resulted a constant increase in the temperature. Finally, this arrived at the point where the exhaust became red-hot, and as far back as the cylinders.

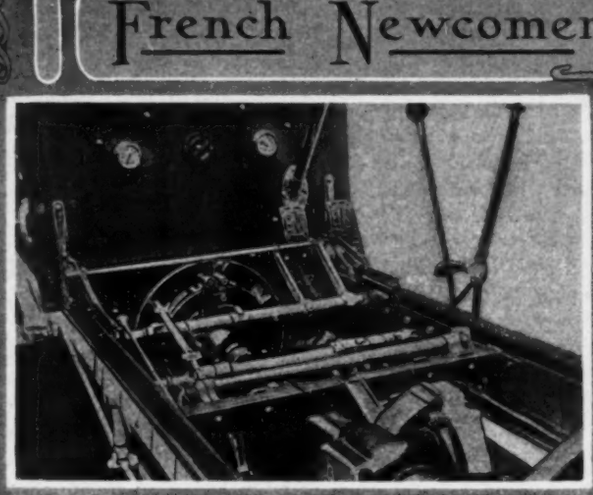
Upon arriving at this conclusion, I bought another muffler on trial, and as it proved satisfactory, I kept it. My hot pipes have entirely disappeared since putting the new one on.

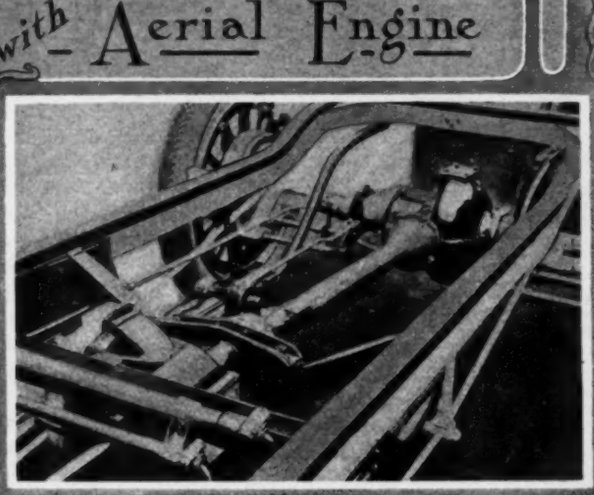
V. K. MALONE.

Kansas City, Kan.

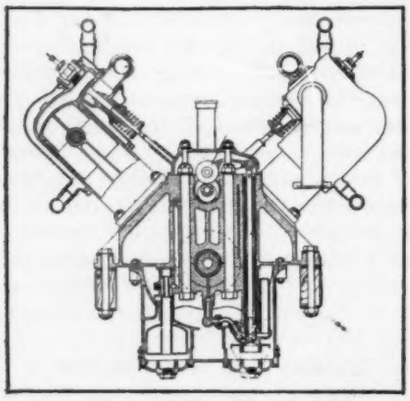
This brings out very clearly a point that was not touched upon in the answer to J. T. D., published in the issue of April 15. The point is well taken, and should be kept in mind by anyone having trouble with pipes heating up. Many think this necessary, but it is not.

French Newcomer with Aerial Engine





PARIS, May 1.—One of the largest producers of aeroplane engines in France is about to turn his attention to automobiles, and the advance notes of the car to be produced are of more than passing interest. In fact, to the casual observer, some of the details are in the nature of an amazing departure from current practice. The power plant details, in particular, present some new ideas adopted from aerial practice which will doubtless provoke much discussion. Aside from the new and advanced features, the general appearance of the finished vehicle is not unlike that of a number of other French cars, as Renault, C. G. V., and the recently described Ampere.



Cross-Section Showing Oil Pump.

The possible openings for discussion are shown by the statement that the engine used is the same as the one supplied many prominent members of the aerial brigade, viz., an eight-cylinder of extremely light construction. This gives an opportunity for a revival of the old discussion as to torque of motors with more than four cylinders. Is the torque more even than the four, to more than make up for the extra weight and cost? That is an open question, at least as to cost; but on the subject of weight the E. N. V. scores heavily, as, being built primarily for aerial use, where weight is reduced to the absolute limit, the ratio of weight to power is very low indeed. This will satisfy the advocates of light construction who are not partial to the air-cooled engine; in fact, this motor goes even the latter one better.

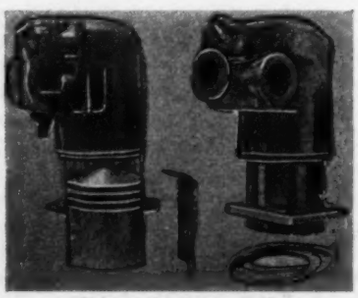
Thus the total weight of the engine alone is 330 pounds. At the moderate speed of 1,000 r.p.m. the power developed is 50, while by speeding up to 1,500 r.p.m. or more, 75 horsepower may be had. The former is 6.6 pounds per horsepower, while the latter speed reduces the ratio to 4.4 pounds. Putting this motor into a car will, with a car weight of 3,300 pounds total, be in the ratio of 44 pounds, which is less than the best "four."

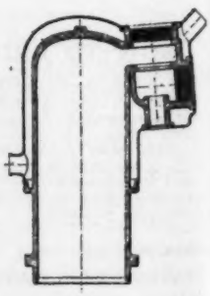
Distinctive Features of the Engine.—The engine presents many distinctive ideas in automobile practice. The cylinders, 100 mm. (3.94 inch) bore by 130 mm. (5.12 inch) stroke, are set at an angle of 90 degrees to one another. In this manner there are two groups of four cylinders on each side of the axis of the motor. The cylinders are cast separate, without water jackets, and are machined both inside and outside. This process results in each of the castings being of exactly the same weight as every other one, and the resultant saving in the total weight is considerable. Moreover, it allows of a much lighter cylinder casting than could be successfully used otherwise.

The position of the outlet and inlet for the exhaust and the carbureted gas are peculiar. The outlet is located at the side of the cylinder casting, and the castings are so placed that number one cylinder in both groups exhausts at the front side, while number two exhausts at the rear side. Three and four are just like one and two, so that there are four individual exhaust pipes on each side. They are conducted into a header, these being placed below the crankcase on each side. From each header, a pipe leads straight back to a muffler. In this arrangement not only does each group of cylinders have its own exhaust pipe and muffler, but down as far as the exhaust header each cylinder has an individual outlet.

The inlet, on the other hand, is placed in a position which would be best described as the middle of the front of the cylinder casting. This brings, when the motor is assembled, all of the inlets on the inside facing one another. Short pipes connect them, and from the middle of these—that is, exactly between cylinders two and three—a pair of pipes of drawn copper tubing lead to the carbureter, placed in front of the crankcase.

The waterjacket, of copper, is not riveted in position nor held by a junk ring, as is usual, but is the result of electrodeposition, all joints being thus proof against leakage. Moreover, so closely is the copper joined to the cast iron of the cylinder that it is impossible to distinguish the exact point where the iron leaves off and the copper begins. It is a method which has but one disadvantage, that of first cost. The water space is determined with accuracy, while minimum weight is obtained.



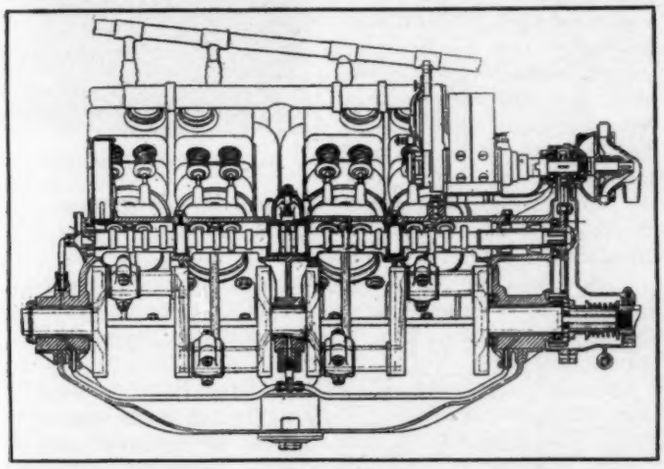


Cylinders Have Electrically Deposited Water Jackets.

The valves are not placed in the head, as is the ordinary practice with very light engines, but are placed side by side on the inside, so that a single camshaft operates the valves of all cylinders. The camshaft, for the operation of these valves, is machined from the solid metal, resulting in rigorously accurate cams, and again the extreme lightness is favored. The drive of the shaft is by means of a spiral gear of very large diameter. This means low friction losses and very quiet action. The cams are of a variable shape, from the point exactly under the valve outwards, and the shaft is slidable in a longitudinal direction.

The driver of the car has at his disposal the manipulation of this shaft, so that he may vary the lift of the valves at will and thus, if he so desires, effect the maximum fuel economy.

Very Lightweight Four-Throw Shaft.—The crankshaft is a fine piece of machine work. The circular webs are turned out, both inside and outside, and the crank pins are also drilled through. The shaft is of the four-throw variety, and, except for the great length of the pins, is not different from any ordinary crankshaft. The circular webs, which are heaviest at their extremities, or rather peripheries, in this respect aid in the flywheel action and allow of the mass and weight of the latter being reduced. They also increase the balance of the motor as a whole because of their location. As to balance, this is not quite as good as the six, but the difference is small. The longitudinal



The Longitudinal Section Displays the Crankshaft.

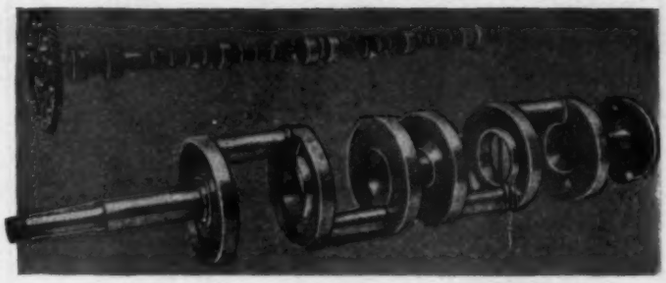
couple is balanced, which is not the case with the six. The transverse couple, similar to the six, is completely balanced, and, in common with the fewer number of cylinders, the primary force is unbalanced. This, however, is very small on the sextuplet arrangement, while, with the eight it is very high.

The largest variation of energy due to the moving parts, or, more correctly, the reciprocating parts, is lower than the same for the more common sixes. So, too, the figure for the energy ratio is less than half that of a six, this being advantageous.

The torque is more uniform than any six, consequently the shocks to the parts of the mechanism are less, and the necessity for changes of speed are even less than in a six, one of the latter having been operated without a gear box.

Size and Length of Main Bearings.—Plain bearings are used and are of exceptional length, that is, at the ends. These have a length of about two and a half times the diameter of the shaft, which is, itself, of a very large size. The crank pins are of the same diameter as the bearings, and the pin length is also two and a half times the diameter.

The connecting rods are offset and have the ordinary I-section. The piston and rings, together with the piston pin and its method of fastening, present nothing novel. The piston has a domed top, which is machined all over. This procedure is expensive, but saves weight, and by making the pistons more nearly alike contributes very materially to the balance. Three rings are used, all placed above the piston pin, but another ring, or, more correctly, a lip, is turned into the inside of the bottom of the piston. This



Camshaft and Crankshaft Are Made Very Light.

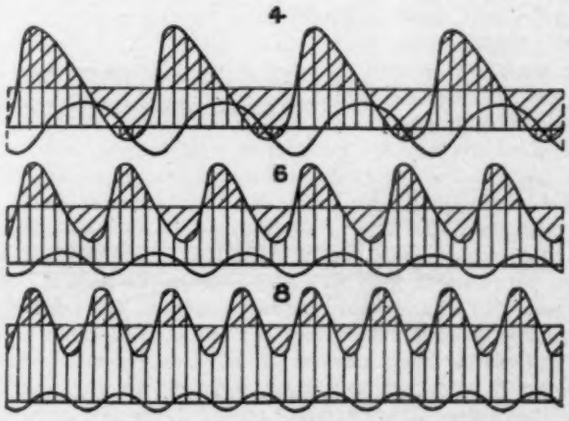
catches and retains the surplus oil, and feeds it through small holes to the cylinder walls.

The lubrication differs from this construction in that it presents some element of novelty. Lubrication is of particular importance on an engine of as fine constructive workmanship as this one, for its very fineness would be less protection against the lack of oil than would the inferior but larger parts of a more husky machine. The lower part of the crank chamber forms an oil tank. The level of the liquid in this is controlled by a float. A lubricating pump driven off the end of the camshaft, the rear end, by the way, delivers a constant supply of oil to the central and main bearings of the main shaft, as well as the camshaft bearings. Both shafts are hollowed out, so that the oil circulates through them. The crank, in addition, is bored at all of the pins, so the oil circulates directly to them. The round webs are also bored and from them to the upper end of the rods a connecting tube of copper leads the oil up to that point. All surplus oil from the mechanically lubricated bearings flows to the crankcase, where it is led into the special chamber, from which the float regulates the return flow.

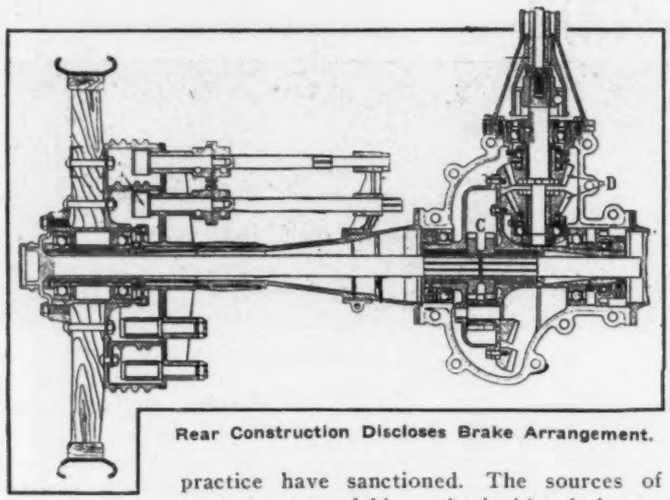
The water is also positively moved around by means of a large diameter pump of the centrifugal type. This is located on the extension of the magneto driving shaft, midway between the cylinders and rather high up. The magneto being driven at crankshaft speed, the water is moved at this same high rate. This high flow rate allows of somewhat smaller diameter water pipes, showing the faithful attention to small details which has resulted in the unusual weight reduction.

The water outlet is on top of the cylinders, from where a gradually increasing sized pipe leads up to the water tank. The pipes for the two groups are separate and enter the water tank, placed on the front of the dashboard, on opposite sides. The radiator is placed, C. G. V. fashion, forward in front of the engine and rather low down. An air-tight bonnet above the engine and an air-tight pan below it force the air after passing through the radiator to do double duty by passing over the length of the engine, in which cooling action is gained.

Ignition Is Regular Except for Magneto Position.—The ignition system presents those features which time and modern



Torque Curves for Four, Six and Eight Cylinders.



Rear Construction Discloses Brake Arrangement.

practice have sanctioned. The sources of current are two-fold, so the ignition is known as double. Storage batteries and a high-tension magneto are provided, the latter being mounted in an unusual position. This, on a shelf or platform formed by the upper half of the crank-case, is located midway between the groups of cylinders. It is closer to the front end than the rear, being nearly opposite to the first pair of cylinders. It is driven from the camshaft by means of a silent helicoidal gear, and carries the water-pump on its outer or forward end. It turns upon ball bearings, which are arranged to take thrust in both directions, thus caring for any possible thrust either from the pump or from the driving gear. A slip joint in the magneto shaft allows of its ready removal without disturbing the pump or driving arrangement.

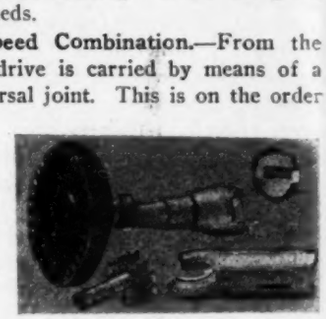
Short Bonnet and Low Center Line Very Noticeable.—The construction of the motor is such that it takes up no more space longitudinally than any four-cylinder vertical of the same size would. From this the bonnet is short, much shorter than would be expected from eight cylinders. Another characteristic, noticeable at once, is the low center line. The low flat position of the cylinders allows of the center line being kept very close to the ground. In this way the center line is at the same level, and the straight line drive is obtained.

The first step in the transmission of the power from the motor to the road wheels is a band clutch. The two bands, fitted in a groove on the large diameter flywheel, are attached at their extremeties to the ends of pivoting levers, in such a way that they have free movement and can shape themselves freely to the form of the flywheel. To clutch, the pivoted levers are so moved that the bands grip the surface of the flywheel. The operation of these levers is interesting. The inner extremities opposite to the bands carry toothed sectors, which are connected by an inclined shaft. This bears an external toothed gear, the movement of the shaft operating the sectors and the levers.

Three-Point Suspension for Transmission.—The transmission is located back of the middle of the chassis, being hung on a pair of cross members. These are of an inverted U-section, the metal being pressed steel of large breaking area. The forward support is straight, but the rear one is made with a deep drop. The depth is made necessary by the low position of the shaft. The cross member passes down and under the transmission case, while an additional short cross piece stiffens it above the shaft. The latter is of a U-section, and is a casting.

The transmission proper has a number of peculiar features, the speeds are four in number, although the eight cylinders are so flexible and give so even a torque that no transmission would be necessary. Of these speeds, two give a direct drive. The most noticeable point about the gear box is that it contains but two of the speeds and the reverse, the other two being incorporated in the gear box at the rear axle. The box in the middle of the frame gives the first, fourth and reverse. The case combined with the differential housing carries the gears which give second and third speeds.

Unusual Rear Axle and Speed Combination.—From the gear box to the rear axle the drive is carried by means of a propeller shaft and special universal joint. This is on the order of a pair of semi-circular hollow forks, which are free to slide around in the grooves of a spherical block. The latter is grooved in two directions, so that the forks, when in place, lie in two different planes, at right angles to one another. The rear end of the universal forms the clutch, which gives the change of speeds incorporated with this construction. To do this, a freedom of motion along the shaft is necessary, and the peculiar universal joint allows this.

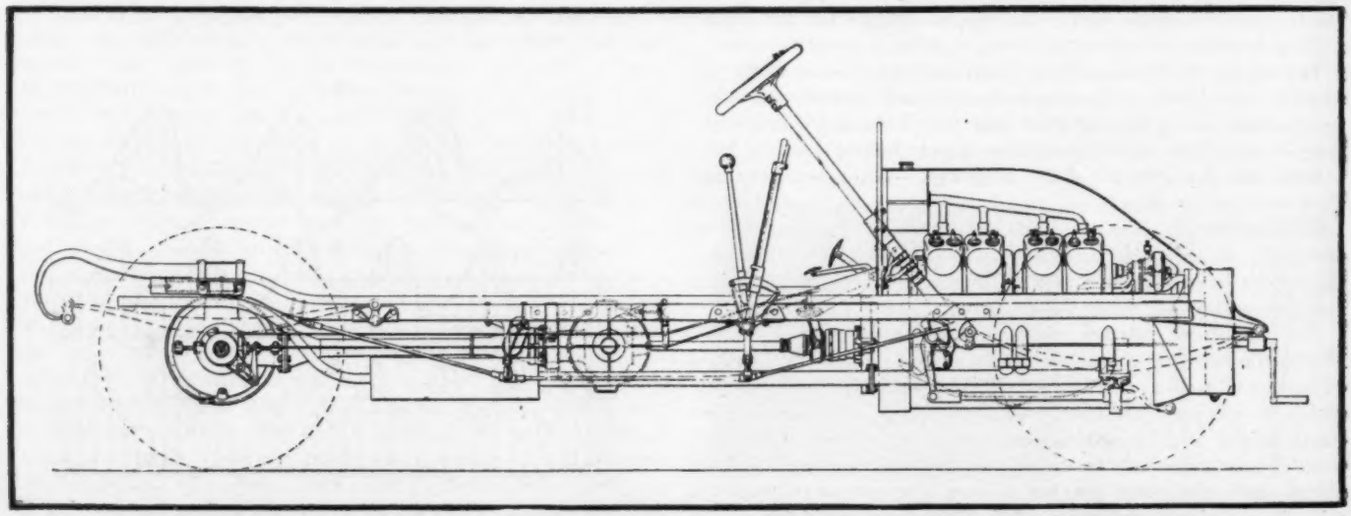


Peculiar Universal Joint.

A differential of the spur type is used, to which two bevels are attached. Two gears on the cardan shaft mesh with these, and by means of the clutch, just described, are thrown into or out of engagement.

The shaft is enclosed in a tube of large diameter and very thick, which acts as a radius and a torque rod at the same time. This forms a part of the rear housing, when in place, and is flexibly mounted at the forward end. From the differential housing of large diameter, to the spring seats, which are formed integral, the axle tube is of a tapering section.

The frame is of armored wood, a double truss reinforcing it between the springs. These are semi-elliptic both front and rear, the rear end of the frame being carried out rather far, and a dumb iron fastened to it carries the spring. The construction is such as to give the impression of a three-quarter elliptic. The front springs are of the very flat semi-elliptic type.



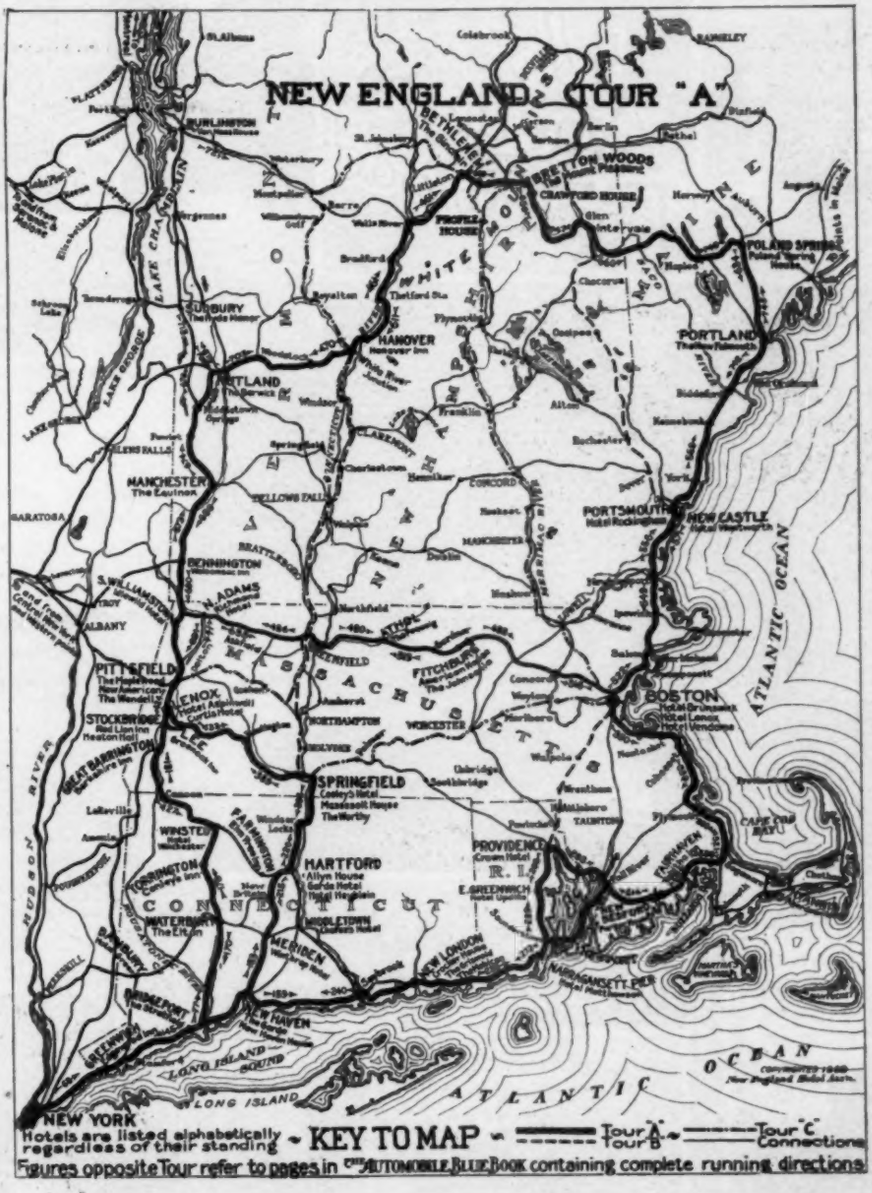
Complete View of the E. N. V. Eight-Cylinder Chassis, with Four Speeds and Armored Wood Frame.

NEW ENGLAND OFFERS MUCH TO AUTO TOURISTS

WHEN one plans an extended tour a great aid is the possession of a map from which one can gain a general idea of the territory to be visited. New England has diversified scenery, excellent roads, and hotels capable of supplying maximum comforts at reasonable prices. While one tourist may desire to plod along leisurely and make the day's run of reasonable length, the next man may find it necessary to utilize his time more sparingly and thus be compelled to drive from early sunrise to late sunset.

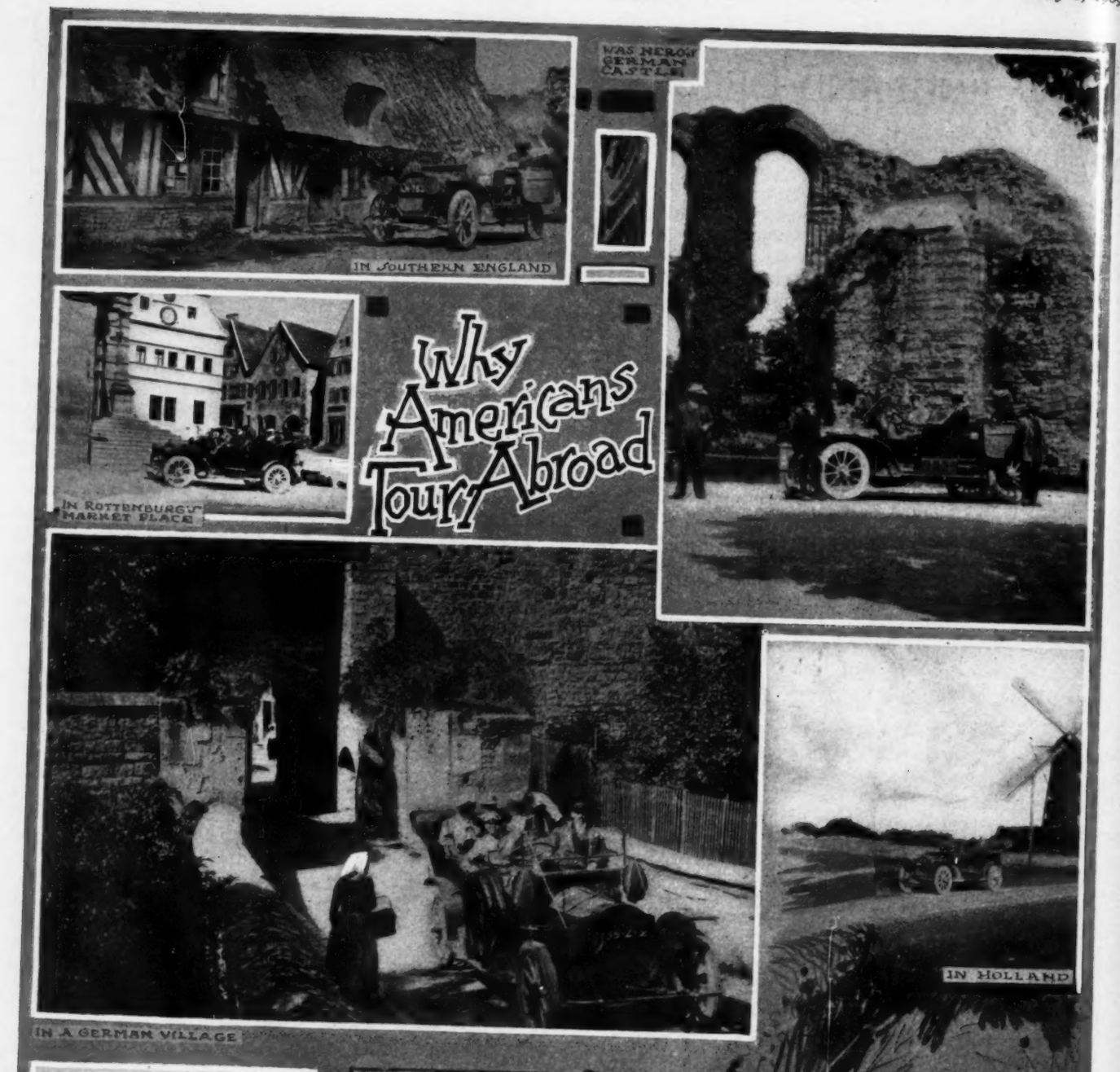
Comfort in touring means a good night stop, either in a spick-and-span New England city, or else at some picturesque resort by the seashore or in the mountains. And New England has cleanly cities and towns, rugged, foliage-covered mountains and peaceful valleys, and also possesses a coast line along which one can drive to the music of Old Ocean's ceaseless roar.

As an aid to the thousands of visitors who this season will enjoy six of the original thirteen States, the New England Hotel Association has outlined three tours for those tourists who do not want to be bothered too much in planning their own routes. The association is distributing folders containing a comprehensive New England map on which the three routes are emphasized in such manner as to give a clear idea, and also include a diversity of side trips and unlimited opportunities for "exploring" in in all directions from the beaten path. These maps contain a reference to the pages in the "Official Automobile Blue Book," which give the complete running directions. Any one of the hotels belonging to the association will, upon written request, supply the folder maps.



Herewith New England Tour "A" is given and it will be supplemented with Tour "B" and Tour "C." Tour "A" follows the shore line from New York City to New Haven and New London, and then goes to Providence, swings around toward the Cape Cod country, and finally reaches Boston. Northward the route is to Portsmouth, then to Portland and Poland Springs. Next comes a westerly course through the White Mountains, then the Connecticut River is followed, after which the Green Mountains are crossed to Rutland. Vermont and western Massachusetts are covered, with the option of returning by two routes from Lenox—one going through Springfield, Hartford and Meriden, and the other by way of Winsted, Torrington and Waterbury. Of course it is possible for one to modify the trip in various ways: for instance, from Boston to Pittsfield, Athol, Greenfield and North Adams, which supplies an interesting cross-State tour. Indications are that New England will see more automobile tourists during the coming season than ever before since the appearance of the motor-driven vehicle, and the preparations being made insure excellent treatment all along the line.

Another Blue Book Section.—The 1909 edition of "The Automobile Official Blue Book," Section No. 1, for New York, Canada and the West, is off the press. In this edition the Class Journal Company incorporates considerable additional road information throughout the territory. It is a leather-covered volume of 720 pages, covering in more detail than ever before the territory in New York State and portions of Canada, to which is added, for the further convenience of the tourist, the Erie — Pennsylvania—section, whose routes, on account of their peculiar location, enter both the territory of the New York State book, the New Jersey-Pennsylvania volume, and also the Middle-Western volume. In the first part of it is used an entirely new map of New York State. A new feature is a key supplied this map, which plan is carried into the index by a letter and figure, reference to which will enable the tourist to look up any place desired quicker and easier than has heretofore been possible. The index itself has been broadened in many ways, and a large number of smaller places have been added to the former lists. The great amount of road improvement on the lower west side of the Hudson River has furnished tourists a considerable number of new routes. Of the routes printed for the first time this year, one of the most notable is that from Montreal to Burlington, Vt., which will be found in the Canadian section this year, including odometer mileages, and a map specially drawn.


IN SOUTHERN ENGLAND
WAS NERO'S GERMAN CASTLE
IN ROTTENBURG'S MARKET PLACE
Why Americans Tour Abroad
IN A GERMAN VILLAGE
IN HOLLAND
THE GATE OF ROTTENBURG
MONT ST. MICHAEL
PACKARD IN THE BLACK FOREST

AMERICANS FORMULATE EUROPEAN TOUR.

Automobile touring parties who are looking forward to spending the coming Summer abroad are already starting for Europe. Three Franklin cars, respectively from Denver, Oakland, and Salt Lake City, are in the van in this European invasion, with parties that will in their travels cover all the countries between Spain and Norway, Scotland and Turkey. The plans of the tourists are outlined as follows:

From Salt Lake City.—Starting on a tour of no less than ten countries, George T. Odell and party from Salt Lake City recently sailed from New York on *La Provence,* and in the course of the next four or five months they will travel between 6,000 and 7,000 miles, using a six-cylinder car.

Landing at Havre, the tourists will go to Paris and Bordeaux, and thence into Spain, there visiting San Sebastian, Saragossa, and Barcelona. Returning to France on the way to Italy, they will visit Montpelier, Marseilles, and Monaco, and in Italy will follow a route leading through Genoa, Florence, Rome, Milan, and Venice. In traversing Austria the party will tarry at Vienna, and in Switzerland at Zurich. Through Germany, by way of Munich, Stuttgart, Leipzic, and Berlin, the travelers will go to Luxemburg, and thence, by way of Ghent in Belgium, back to France, whence from Calais they will cross to England, going from London to Plymouth, Shrewsbury, and Newcastle. Crossing the Scottish border they will visit Edinburgh, Inverness, Wick, and Aberdeen. Returning through England, by way of Carlisle and Chester, they will make Liverpool their port of departure for home.

From Oakland, Cal.—Setting out on a tour of Europe which will extend over 10,000 to 12,000 miles and continue from six to nine months, Mr. and Mrs. Walter Morgan and Mr. and Mrs. A. F. Cornwall, of Oakland, Cal., are about to sail from New York on the *Rotterdam.* Landing at Boulogne, they will take a Franklin touring car, which has been shipped to Havre by another boat, and thereupon begin their wanderings, which will extend over the Continent and the British Isles.

The first four months will be spent in the countries of the Continent; then will follow two months in and about England, after which the tourists will spend a month in Norway and Sweden. In November they will leave the car and start for Egypt.

From Denver.—Shipping his automobile, a seven-passenger, 42-horsepower Franklin, to London, Dr. J. W. Harris and party will, June 15, leave his home in Denver for a tour of the British Isles and France. Arriving at London, he will tour north to Cambridge and York, and thence to Edinburgh and Inverness, then back to Glasgow, through the Burns country, and will cross to Ireland. The party will take a trip through the north of that island, going then to Dublin and south among the lakes of Killarney. Crossing to Wales, the tourists will traverse the north of that region and on the way back to London will visit the Shakespeare country and Oxford. Going to Folkstone, they will ship the car to Boulogne and will then spend three or four weeks in touring France.

HOYT SAYS AFRICAN ROADS ARE MAGNIFICENT.

New York City, May 3.—After a 5,000-mile motoring trip, Colgate, Hoyt, ex-president of the A. C. A., arrived home recently. He came direct from Southampton, but spent the month previous in Northern Africa, where his party toured from Algiers across an oasis in the desert to Biskra. Thence their route lay through the desert toward the northeast coast of Egypt and finally along the Mediterranean to Tunis, where they took a steamer. Many ancient cities were passed, including Carthage and Kabrouan.

Although warned of brigands, the trip culminated without any untoward incident. Speaking of the African part of the tour, Mr. Hoyt said: "We were all enchanted with the coast roads to the eastward of Algiers. Most of the roads were even superior to those of France. The trip was magnificent, whirling away over mile after mile of sand, ancient cities and historic spots."

MAXWELL PERSONALLY CONDUCTED TOUR.

One of the most novel tours of the Summer will be that which the Maxwell-Briscoe Company are now arranging for the early part of June. This will take the form of a pleasure tour, closed to Maxwell owners and the running schedule will be very easy. The daily mileage will not exceed 100 miles, over the most attractive roads of the eastern parts of New York, New Jersey and Pennsylvania.

No entry fee will be charged, and a number of interested Maxwell owners, who do their own driving, have already signified their intention of taking in the tour.

Starting from New York City, Monday, June 14, the tourists will proceed up the Hudson to Tarrytown, and thence via New Haven and Waterbury to Springfield. From there the route goes through the Berkshires to Poughkeepsie. The third stage will carry the Maxwellites over into Pennsylvania, by way of Port Jervis and the Delaware Water Gap to Philadelphia. Jersey will then be crossed to Atlantic City, where the tourists will rest over Sunday, the 20th. On the following day the return trip to New York will be made, traveling via Lakewood.

Victor Breyer at His Desk in His Paris Office.

FOREIGN A. A. A. TOURING ARRANGEMENTS.

Members of the American Automobile Association who expect to tour abroad this Summer will be interested to learn of the creation of a European touring bureau specially adapted to their needs. The main object of this bureau is to provide all members of the association going abroad with any information or help they may require. Its services are to be entirely gratuitous, except, of course, in cases where unusual expense is involved. The management and direction of this bureau has been intrusted to Victor Breyer, who is well known to the automobiling fraternity, both in America and in Europe. He has been one of the leading writers of the European sporting press for nearly twenty years, and is thoroughly conversant with the English language, as well as with American methods and customs.

For the benefit of association members who wish to rent cars, either by the day, week or month, arrangements have been made with the best Parisian firms whereby they can secure special rates. Care will be taken to secure good cars and competent chauffeurs, and any complaints will be thoroughly investigated by the association, and measures taken to remedy them. A scale of prices for this service, varying according to power, number of passengers, and distance to be covered, will be sent on application. Mr. Breyer's address is 4 bis, rue Descombes, Paris, France.

The Riviera Gateway into ITALY

By FRANCIS MILTOUN

NO softer, more delightful automobile touring ground exists than the French and Italian Rivieras; and Italy, too, is now becoming the vogue among automobile tourists, as it has been for long years past with all other classes of travelers.

Taken all in all, that wonderful strip of Mediterranean coast-line, from Marseilles to Genoa, has not its like on earth for picturesqueness and historic souvenirs, and it is blessed with good roads, too, throughout its length of four hundred odd kilos.

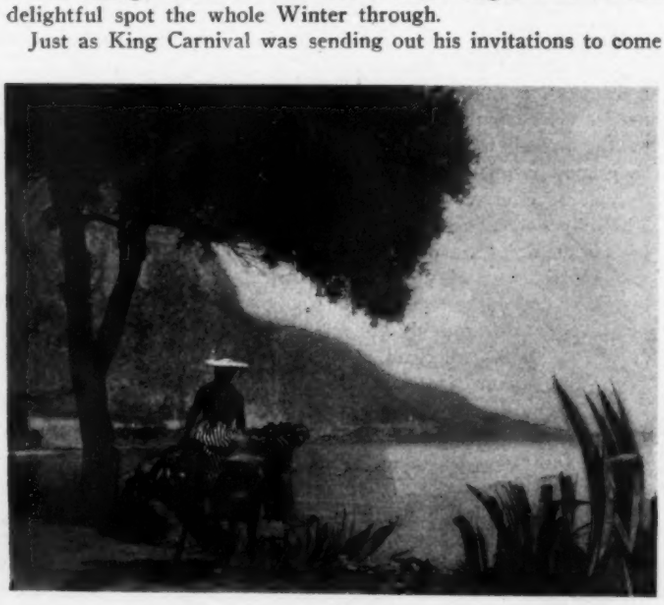
The Riviera gateway to Italy is the peer of all others for making one's entrance into that romantic land. While the Swiss-Italian and Franco-Italian passes are still snow-bound, or running rivers of slush and mud, one may pass the Pont Sainte Louis, between Menton and Vintimille, at sea level, amid the flowering blossoms of an early Spring, and between groves laden with oranges and lemons.

The itinerary is an historic one, and there is not a kilometer of the way but has a reminder of some Roman Antony, or a fleeing Pope, or some confident or down-hearted Napoleon.

We set out to cover the ground again, though already well known to us by road and rail; this time *en auto*. We set out from a little Mediterranean fishing village on the shores of the Golfe des Lions, where we had passed a happy Winter with a crew of artist folk.

The sunsets and the quaint customs of the fisherfolk, and the rare old house fronts, and the canals and quais of Martigues, the Provençal Venice, were quite different attractions from those to be found in the resorts out East, and more, much more, to our liking; and so it was that we had lingered on at that delightful spot the whole Winter through.

Just as King Carnival was sending out his invitations to come and visit his cities of pleasure of the real Riviera, his *battailes des fleurs*, his *bals* and *fêtes* and *veglioni*, our thoughts turned thither, not to rest within his realm, but to pass through, simply, en route for Italy, where the genuine romance life of the Middle Ages still pursues its course, or something not very far advanced beyond, in many a little town of the Tuscan hills and Lombard plains, unspoiled by any such interpolations as the super-refinements of the Côte d'Azur, the world's loveliest and most dissolute playground. Italy is backward; there is no doubt about that, in the small towns at any rate; though Milan and Turin and Rome are as advanced as "Young Italy" can make them.

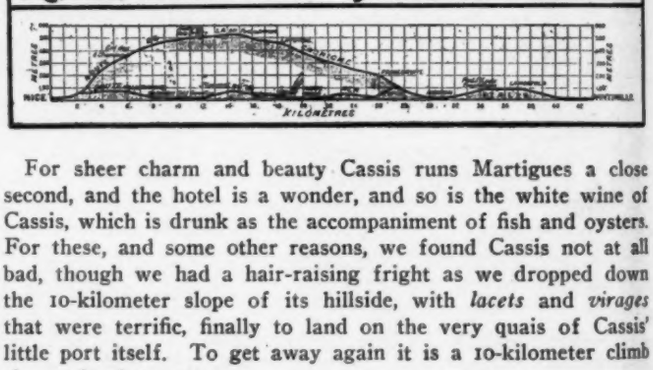


A Nicios Whom We Met While On the Route.

We were three, the author-méchanicien-chauffeur and two in the tonneau, when we set out from Martigues. We dodged around Marseilles and its twenty kilometers of horrors in the shape of badly-paved and worse encumbered roadways in and out. The automobilist down from Paris—if he knows his way about, and sticks to the "Route d'Italie" via Aix-en-Provence, leaving that leading into Marseilles to the right—does the same.

Just east of Marseilles we dropped down a red earth hillside into the little town of Cassis, there to renew acquaintance with another artist colony of folk, snugly quartered in the immaculate *chambres hygièniques* of the quaintly-named Hotel Cendrillon, a modest inn which would never have existed at all had it not been for the initiative of the Touring Club de France, which pointed out the way and showed why and how it should be done. Result: happiness and prosperity for the proprietor, and contentment for the guests. Such a hotel is, of course, a success. Some English and American country innkeepers could get some points at the Hotel Cendrillon, if any of their craft should ever come this way.

ROAD PROFILES of the ESTEREL



For sheer charm and beauty Cassis runs Martigues a close second, and the hotel is a wonder, and so is the white wine of Cassis, which is drunk as the accompaniment of fish and oysters. For these, and some other reasons, we found Cassis not at all bad, though we had a hair-raising fright as we dropped down the 10-kilometer slope of its hillside, with *lacets* and *virages* that were terrific, finally to land on the very quais of Cassis' little port itself. To get away again it is a 10-kilometer climb skyward, of course.

"Ate and slept well, and off again at daybreak," as Pepys would have said; following the coast-line eastward past Toulon to Hyères, one of the least-traveled itineraries (65 kilometers) of southern France, and one of the most delightfuly environed. The main "Route d'Italie" passes through Brignoles and Le Luc, only coming down to the coast at Fréjus, 121 kilometers from Aix-en-Provence. One may take his choice, the main road is considerably "faster," though not much shorter, and decidedly less attractive.

After the magnificent road skirting the Bai de la Ciotat, its great Bec de l'Aigle pushing far out into the Mediterranean blue, the wondrous color of its waters and the green of its shores, one comes to Bandol, an incipient watering place, with a promenade lined with palm trees along the sea front (the gift of some Pacha from Constantinople, exiled doubtless for his country's good) and a "good-enough" hotel (de la Marine), of the conventional order, where one gets tourist fare instead of that of the country. There was another heart-breaking drop down from the road on the height as we came down to sea level at Bandol, but the brakes held and nothing happened. One must go slowly though; these finely-graded and well-surfaced French roads look often less steep than they really are, and it's a mighty easy manœuver to slip down at a dangerous pace when nothing is in sight, but more difficult to pull up suddenly if one has to.

After Bandol it was flat, easy going via the rocky Gorges d'Ollioules, always along the coast, via Sainte Nazaire du Var—where the trade in early Spring hyacinthes and narcissi has completely absorbed the population, who used to make a living at fishing, by Tamaris—where Georges Sand laid the scene of one of her romances, and so on and by Toulon—by Toulon and its great arsenal at *pleine vitesse,* for no one ever stops at Toulon unless he has to—and with good reason. Finally, 18 kilometers beyond Toulon, one reaches Hyères.

We lunched pompously at Hyères, in the vast Hotel des Isles d'Or, amid fifty or more English and American and five lonesome Frenchmen. If you don't care for that sort of thing don't come here, but go to the Hotel de France; it is of the soil and will do you quite as well in the feeding line, though less luxuriously. Having been there before ourselves, we changed off, though for no good and sufficient reason. The next time we are passing this way we shall change back again to the smaller place.

A Monte Carlo Gendarme.

Memories of the days when Robert Louis Stevenson lived at Hyères, and his little villa, which to-day is a notable literary shrine (to us, at any rate), was the only reason for our stopping anyway—not being partisans of tea or golf. Hyères, on the whole, is the most unconvincing French (*sic*) resort that ever was, but its climate is mild and one can play golf, tennis, and croquet without going far afield, and that is why it has become popular with a certain class of homeopathic sportsmen and sportswomen from this side.

Cogolin, forty odd kilometers further on, is quaint and the center of a flourishing industry which makes corks for bottles from the bark of the *chêne-liège,* which is gathered in the neighborhood in vast quantities. The process is interesting, and the young girls who mostly occupy themselves with the various processes are of a specious beauty which defies the author of these lines to describe with full justice. The susceptible should come and see for themselves.

Sainte Tropez for *déjeuner* would have been better than Hyères, for the Hotel Sube makes a *bouillabaisse* that is almost the rival of that of Chabas at Martigues.

"A plat there is in France that's famous,"

sang the poet; and he sang with reason.

Sainte Tropez is another artists' colony, and its "Golfe" is marvelously beautiful, and its top-masted, latteen-rigged barques are like nothing so much as great white birds as they come winging their way home at sunset.

Menton as Seen from the Frontier of Italy.

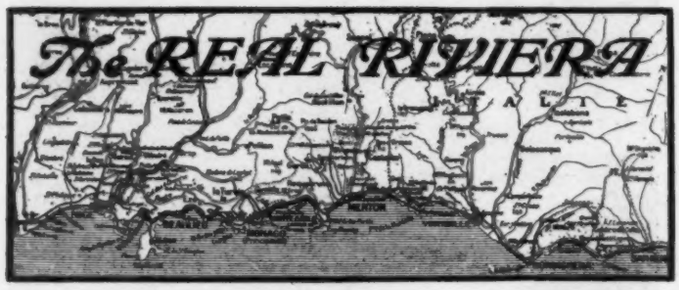
Sainte Tropez faces north and gets the *mistral,* that dread north wind, with full force when it blows. On the opposite side of the gulf, but facing south, is Sainte Maxime, with a few hundred regular inhabitants and as many more living in the magnificently named Grand Hotel. We gave the town and its hotel the go-by, though the place itself is really delightful. Fréjus was more to our liking; there at the Hotel du Midi we were out of the resort sphere of influence, and ate good, wholesome country fare instead of imitation Paris *plats.*

Fréjus is the deadest town on the map of France, and we ourselves, just here, nearly came to being included in the same category by reason of having run full tilt into a chain which barred the road at a railway level-crossing between Sainte Maxime and Fréjus. It was not an effectual barrier, either, for we tore off the front lamps and one mudguard. One might well be half killed and his automobile entirely wrecked by such idiocy, and yet the train might come along and finish him off before he had time to pull himself together. Some day, after a few more accidents of a similar sort, these railway crossing chains will be plainly marked by a white placque hanging in the middle, or, indeed, they may be suppressed altogether. Meantime automobilists will do well to go slowly on this delightful shore road.

Fréjus is a quaint old relic of Roman days, with its ancient

The FRONTIER

The DOUANE



triumphal arch, its arena, and its aqueduct still tangibly in view—though all are in a shockingly ruinous state. It is for this reason that we love Fréjus more than we do its more highly polished little brother, Sainte Raphael, just beyond, on the shores of the Golfe de Fréjus, now a resort of the first rank—a decadent fall since the days when Alphonse Karr, Gounod, the musician, Hamon, the landscapist, and Fromentin sought to make of it, and keep it, simply a quiet, unobtrusive little retreat.

The road Italywards divides just beyond Fréjus, the main road mounting the inner flank of the Esterels, via Les Adrets and its still existing auberge and its memories of the brigands Robert Macaire and Gaspard de Besse.

Via Sainte Raphael and the now wide-famed Corniche d'Or, that realization of a benevolent project initiated by the Touring Club de France, one of the marvels of modern road making, the road ultimately arrives at Cannes in about the same distance as the inland route, say forty kilometers.

Where Lives M. Baliff of the Touring Club.

To-day the surface of this new-made road is excellent throughout as it twists and turns and rises and falls by the water's edge, hanging perilously here and there on a narrow shelf of rock of porphery red all the way to La Napoule, just before Cannes. M. Abel Baliff, the president of the Touring Club de France, lives midway along its length. Perhaps it is for this reason that the road is so well kept. We are thankful for such a treat, anyway, for it is the most delightful forty kilometers on earth.

Now commences the classic Riviera, a region we already knew of old, even in good old bicycle days. Its scenic charms are as great as ever; indeed, that strip of coast line from Cannes to Menton, by Monte Carlo's rock and on across the Italian frontier, is without doubt the world's most brilliant panorama.

Cannes, Nice and all the rest now string out for fifty-odd kilometers, a succession of gay playground cities, with all the distractions that pampered humanity can suggest.

In the cities and towns of the Riviera to-day all is as *bruyant* and encumbered as the Rue de la Paix of a mid-November afternoon, and the *corniche* road by the sea, from Nice to Monte Carlo, is now doubly dangerous with a double line of tram tracks and an endless procession of scorching automobiles.

By the "Grand Corniche," up around Mont Gros, the Observatoire, and the Col de Quatre Chemins, is the better route by far, and the view is quite as superb, with Eze and its olive trees and La Turbie and its great Augustan trophy—in memory of that noble Roman's victory over the peoples of Gaul in the foreground, and Monte Carlo, Cap Martin and Cap Ferrat stretching seaward in the background far below.

What hill-climbs there are hereabouts! But what gentle grades they have! No modern automobile will give even a gasp at them; one could mount to the skies on such easy rises as those which climb up out of Nice or Menton via Roquebrune.

After Fréjus we put in the night at Cannes, merely because we had some friends whom we wished to meet, and because the Hotel Beau Rivage had a most convenient garage, and because the hotel itself—though a resort establishment in every sense of the word—was one which catered for an exclusively French clientèle, and therefore omitted the eternal *omelette au jambon, bifteck* and boiled mutton from its menu. Did you ever remark the frequency with which the *plats* occur when you, a stranger, take your seat at a *petit table* in a hotel which serves one class of fare for its table d'hote and another for *"les étrangeurs"*?

Coming out from Cannes the next morning we ran over a sheep—which was "playing" in the public road with a dog. The dog escaped, but the sheep became mutton forthwith.

Goats Never Get in the Way.

In the Esterels there is a road repairer who is always accompanied by a pet goat, with a great brass collar and a bell hung around its neck. The goat never gets in the way of an onrushing automobile which is trying to hold on to its speed as long as possible on the coming rise. It stands simply to one side and eyes the passing crowd with a genuine and intent interest. Wonderful beasts, goats! But sheep and dogs and chickens and small children—they are not in the same class!

The gateways into Italy from Nice and Menton are either via the mountain road over the col de Tende, via Sospel and the Italian Custom House at San Dalmazo de Tende, or via the shore road through the Pont Sainte Louis—where the Italian Customs arrangements take place—and Vintimille.

We chose the latter route on this occasion because we were bound on an itinerary which proposed following the Italian coastline all along to Reggio, where we were to cross to Sicily.

Leaving Cannes or Nice en route for Italy one might plan to take his déjeuner at that little seashore restaurant called the "Roches-Rouges," on the lower road just beyond Menton, on Italian soil. We had planned to do this because of pleasant memories of a former repast. This little Franco-Italian restaurant is really very good, though unpretentious, and you will be regaled while eating by the music of a quintette of smiling Italians, and afterwards have your photograph taken and printed on a half a dozen post-cards—at a cost of three francs—and the loss of ten minutes' time. Quick work!

The Route d'Italie leaves French soil and enters the neutral ground of the Pont Sainte Louis—marked by a great white painted triangle on the face of the cliff above—just beyond Menton. A moment after it boldly circles the face of the Maritime Alps of Piedmont, and in another six kilometers plunges through a tunnel and enters Ventimiglia.

And One Passes from France into Italy.

The Montée Sainte Louis or Avenue de la Frontiere at Menton is well known of all automobilists bound into Italy. Here, at one end of the bridge, is the cabin of the French *douaniers*, where you present your "passavant," giving the details of your automobile in case you propose entering France again. At the other end is the Italian customs bureau, where, between sunrise and sunset, you may enter your automobile temporarily for three months into Italy upon the payment—in gold—(not even French or Italian banknotes being accepted) of two hundred francs for each five hundred kilos of weight. If you have that open sesame, the *triptych*, issued by the Touring Club de France or the allied automobile clubs, showing that you have already paid a similar sum into the coffers of that association, the procedure of passing the Italian frontier is but a matter of minutes instead of hours if you have not supplied yourself.

We, fortunately—for "time is money," as even the Frenchman has learned to say—were in the former class, but a poor unfortunate who followed in our wheel tracks had not taken the same precaution and was forced to weigh up his machine on the spot, calculate the tax, and then go back to the office of the Credit Lyonnais at Menton to change eight hundred francs worth of French banknotes into coin that would be acceptable to the Italian authorities—which he wasn't able to do after all, the bank having closed its doors for the day before he arrived.

We all dined that night at the Hotel de Paris at San Remo (marked in the Annuaire de Route of the Automobile Club de France with a miniature knife and fork and a four-posted bed, indicating that food and lodging are good).

Our acquaintance of the road only arrived four hours after we did, however, and then only because he was able to bribe a customs official to change his notes into gold by the transferrence of a "Louis"—a ruinous piece of usury. Moral—go prepared!

WOMAN AT THE WHEEL

By Mrs. A. Sherman Hitchcock

WOMAN who has acquired the ability to drive her car successfully is now speeding over the country highways and through the city parks, while Woman who is a novice watches for her more competent sister with wonder—not unmixed with envy—and the desire is created to do likewise. The first time a woman operates her car without an expert to whom she can turn in a case of emergency she will have little confidence in her own ability, whether she has been taught by an experienced driver or otherwise.

Lack of Experience Leads to Confusion in Emergencies.—On each occasion when change of speed is necessary, when she has to avoid other vehicles and obstructions to her progress, it is exceedingly difficult for her to bear in mind even the most simple instructions. It is especially necessary at such times to have the car under complete control and to be possessed of presence of mind to do the right thing at the proper time. The ability to judge speed and distance and the knowledge of control are only to be obtained by actual experience; and careful study and keep observation, combined with intelligence, care and discretion, will in a short time give one complete confidence to drive a car with perfect safety. Until one has acquired confidence in herself it is very unwise to try to drive through congested thoroughfares, or in dangerous and out-of-the-way places.

Learning to Drive.—A clear road where there is plenty of room should be found for experimenting, and learning to steer properly should be the first thing attempted. The steering mechanism of a motor car will be found very sensitive to the woman beginner, the slightest turn of the wheel bringing an instant response that is rather confusing at first. The changing of gears should next be thoroughly learned, and to do this the best practice can be had by backing and turning around. This should be done repeatedly until there is an instinctive response to each condition. The woman motorist should avoid short turns until she has had sufficient practice to insure accuracy of control and judgment. After confidence has been fully established the operation of changing gears on a motor car becomes almost second nature.

Preparing the Car Before Starting Out.—The experienced driver will be able to detect any faults in the motor of the car she is driving and with the knowledge she should possess will usually be able to overcome the difficulty and thus prevent more serious trouble from arising. A woman autoist can never be too well informed regarding the mechanical features of her car, as she cannot always depend on others to help her out in case of trouble. Before starting out the tires should be examined to see whether they are in good condition and properly inflated and all the wearing parts of the car well oiled, particularly the steering pivots and joints of the steering gear and the change gear and brake mechanism. The crankcase, gearbox and differential case should be seen to have a sufficient supply of grease or oil and the gasoline, water and oil tanks should be filled. The batteries should also be tested before the start and the spark plugs examined to see if they are clean. A good rule for the autoist is to test the brakes daily, the operation only taking a second, but being of the utmost importance for safe driving. No trip should be taken without extra spark plugs and inner tubes, and an extra battery should be provided in case of failure of the regular one.

Strict Attention Must Be Paid to the Driving.—The most important thing to be remembered by the autoist is to keep her attention concentrated on the work before her. It is bad practice to look around, wave to one's friends or become so interested in conversation with one's companion that the responsibility is overlooked, as one is apt to lose control of the wheel, strike a sudden obstacle in the road and dash into a fence, river or sidewalk before it is possible to prevent it. In starting off from a standstill the low gear should always be used,

the change into higher gear being made as the car gathers speed. If starting is attempted on high gear the motor will be stalled, which necessitates getting out and cranking.

Changing Gears and Negotiating Corners.—In general in changing gear time should be taken; one should not attempt getting into the high gear until the speed of the car increases sufficiently and the motor is running strongly. In taking a hill the motor should be given plenty of gas and the car driven up on the high gear as far as possible, but as soon as the motor shows signs of slowing down the change should be made to a lower gear at once. Corners should be taken at a slow rate of speed and plenty of room allowed in case of skidding. The autoist should not take chances, as it is better to lose a little time in slowing up than risking injuring some one or the car. Bumps and cross-walks should be taken at an angle, as it tends to distribute the shock evenly, whereas, if one drives straight over them the whole brunt of the shock falls on the steering gear and front wheels and this in the long run will send the car to the repair shop. Car tracks should be taken at as near a right angle as possible for the same reason.

Precautions to Be Taken in City Streets.—When the autoist has acquired sufficient control of her car to drive on roads having considerable traffic she can next attempt driving on city streets. Here the greatest care must be exercised; turns must be made slowly and obstructions avoided by liberal margins. The autoist must be ready at any time to slacken speed when in doubt as to the course to be taken by other vehicles and equally ready to move ahead quickly when the occasion demands it. When leaving the car standing by the sidewalk or road the emergency brake should be set and the switch plug removed to prevent possible accidents through people meddling.

Motor Faults and Their Detection.—The detection of motor faults is by no means difficult and the majority of them are readily recognized. For instance, an explosion is heard in the muffler. This is caused by too much gas being fed to the motor, and as this gas cannot be fired or exploded it is forced into the muffler, where it is exploded by the heat of the exhaust. Blue smoke from the exhaust is a sign of too much lubrication, but black smoke shows that too much gasoline is being used in the mixture. If the motor slows down the fault will most likely be in the mixture or due to the battery being run down. If the motor stops suddenly the trouble can be attributed to an ignition fault. If it slows down and after a minute or two starts up again and runs for quite a while it is a sign that the battery is getting weak. Sometimes one cylinder will miss fire, and though the spark plug has been cleaned and examined and seems to spark well when the car is running on the level, it refuses to do duty on a hill being reached, it is a certain sign that the plug is short-circuiting. This may be due to dirt or oil on the inside or because the porcelain is cracked. The remedy is to change the plug for a new one.

When the Motor Overheats.—In the case of an empty water tank where the absence of water has not been discovered until the motor has overheated and the pistons seized, test the cylinders by sprinkling a few drops of water on them. If the water hisses and quickly evaporates do not refill until the motor cools off. Kerosene taken from the lamps can be poured into the cylinders—this can be done while they are hot. If the pistons have seized tightly the cooling process is a slow and tedious one. The careful driver will try to avoid this happening and will take prompt measures to overcome any symptoms of overheating, such as steam issuing from the filling nozzle or water coming out of the overflow pipe while driving. Other symptoms are continued firing after the ignition is switched off or a slight cloud of smoke rising from the motor.

When a Bearing Becomes Hot.—If a bearing should become hot the best and simplest way to cool it is to pour water on it until quite cool and then lubricate well before running again. In new cars the bearings are very apt to run hot. The least looseness in the bearings of a connecting rod or in the main shaft will set up a jarring knock or sound. This noise will speak plainly to an ear that has once recognized it, and if the motion that causes it is not immediately overcome it will prove most destructive. A common cause of loss of power in gasoline motors is poor compression. This may be due either to the piston rings failing to bear smoothly and evenly against the cylinder wall or to one of the valves, usually the exhaust, not closing tight, or not quickly enough.

THE AUTOMOBILE CALENDAR

AMERICAN.

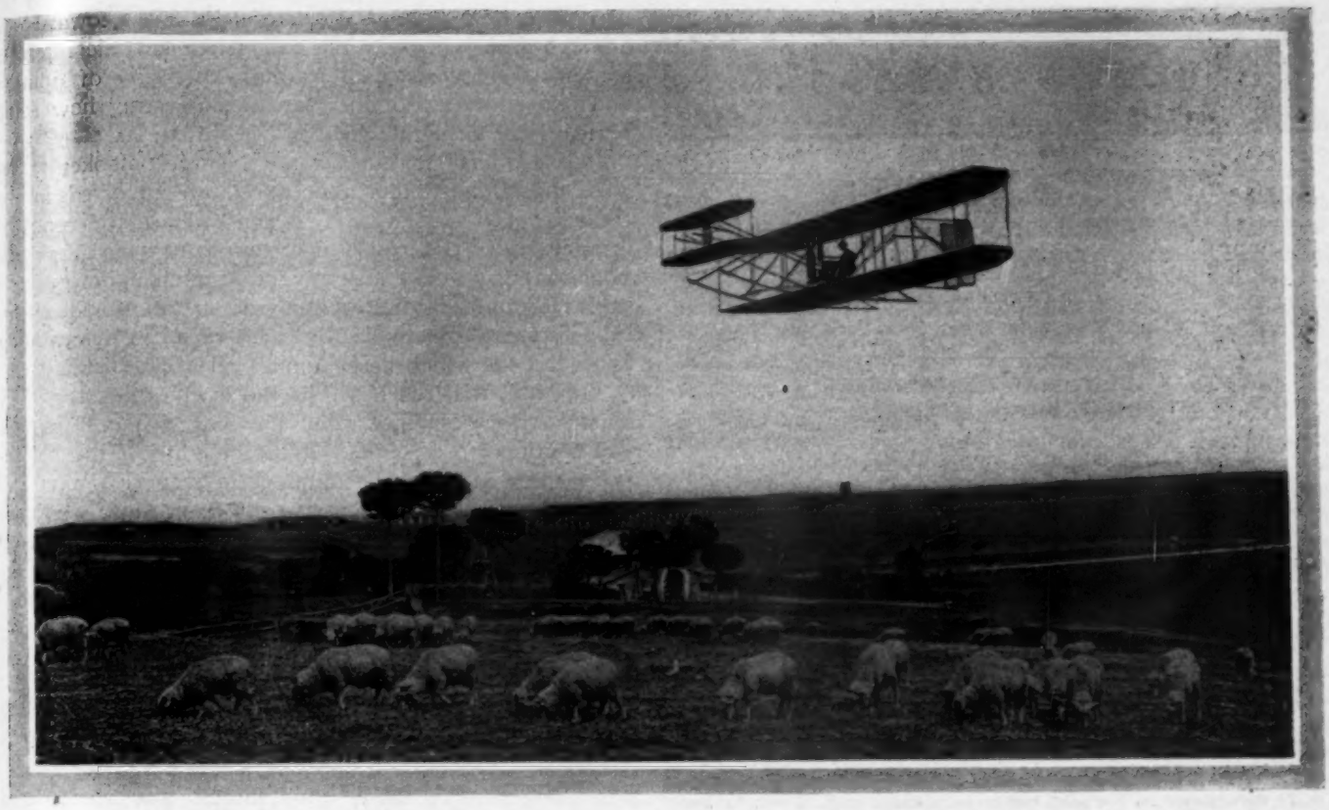
Races, Hill Climbs, Etc.

May 7.....Birmingham, Ala., Track Race Meet, Police Relief Association.
May 10-13.....Detroit, Mich, Four-Day Endurance Run, Detroit Automobile Dealers' Association.
May 15.....Washington, D. C., Reliability Sealed Bonnet Contest, 170 miles, Westminster and return, Washington Automobile Club.
May 18-19.....Norristown, Pa., Second Annual Endurance Run, Norristown Automobile Club, to Hagerstown, Md.
May 22.....Hartford, Conn., 200-Mile Endurance Run, Hartford Automobile Club.
May 22.....Newark, N. J., Third Annual Endurance Contest, New Jersey Automobile and Motor Club, 190 Miles.
May 22.....Albany, N. Y., Hill Climb, Kenwood Hill, Albany Automobile Club.
May 28-30.....Denver, Col., Reliability Contest, Pueblo and return, Denver Motor Club.
May 31.....Wilkes-Barre, Pa., Annual Hill Climb, Giants' Despair Mountain, Wilkes-Barre Automobile Club.
May 31.....Bridgeport, Conn., Annual Hill Climb, Sport Hill, Automobile Club of Bridgeport.
June 1.....New York City, Start of Transcontinental Contest to Seattle, for Alaska-Yukon-Pacific Exposition, M. Robt. Guggenheim Trophy.
June 12-14.....New York City, Catskill-Berkshire Endurance Contest, New York Automobile Trade Association.
June 14-18.....Philadelphia Reliability Run to Pittsburg and Return, Quaker City Motor Club.
June 17.....Readville, Mass., Track Race Meet, Bay State Automobile Association.
June 18-19.....Chicago, Stock Chassis Race for Cobe Trophy and Light Car Race.
June 21-26.....Binghamton, N. Y., Fourth Annual Endurance Run, Binghamton Automobile Club.
June 22-28.....Albany, N. Y., Fifth Annual Tour, Bretton Woods, Portsmouth, Boston, Albany Automobile Club.
June 24-26.....Montreal, Blue Bonnets Track, Race Meet. R. M. Jaffray, Manager.
June 25-26.....Philadelphia, 24-Hour Track Race, Quaker City Motor Club.
July 3 and 5.....Wildwood, N. J., Straightaway Races, Motor Club of Wildwood.
July 4.....Los Angeles, Cal., Southern California Automobile Dealers' Association. Road Races, 250 Miles for Large Cars; 150 Miles for Light Cars.
July 12.....Detroit, Start of Sixth Annual A. A. A. Tour for Glidden Trophy.
Sept. 6-11.....Lowell, Mass., Automobile Carnival, Lowell Automobile Club.
Sept. 15.....Denver, Col., Start of Flag to Flag Endurance Run to Mexico City.
Oct. 7.....Philadelphia, Second Annual Stock Chassis, 200-mile Race, Fairmount Park, Quaker City, M. C.
Dec. 29-30.....Philadelphia, Fourth Annual Midwinter Endurance Contest, Quaker City Motor Club.

FOREIGN.

Races, Hill Climbs, Etc.

May 6-9.....Austria, Small Vehicle Competition, Automobile Club of Austria.
May 8-23.....Belgium, Antwerp, Sixth International Automobile, Cycle, Maritime and Fluviatile Exposition.



Wilbur Wright Astounds the Romans of To-day by Traveling Over the Appian Way Built Before the Cæsars.

WRIGHT BROTHERS ARE COMING HOME.

LONDON, May 3.—Wilbur and Orville Wright are leaving for America, Thursday, their principal idea being the completion of the trials for the United States Government at Fort Myer, Va.

To-night there was a remarkable demonstration of enthusiasm at the Institute of Civil Engineers, when the Aeronautical Society of Great Britain conferred on the Wright brothers its first gold medal. Those who had gathered at the institution to witness the presentation cheered and applauded repeatedly, while the Wright brothers blushingly bore their honors through an hour of the warmest eulogies. Finally the entire assemblage rose up and gave three cheers for each of the brothers. They sang "For They Are Jolly Good Fellows," and ended by cheering Miss Katherine Wright. Sir Henry Maxim, Lieut. Col. Baden-Powell, Capt. F. S. Cody, an American, who is struggling, but thus far unsuccessfully, to perfect his own aeroplane for the British Army, and a large number of scientists and ladies were present.

Col. J. E. Capper, the War Office's aeronautical expert, referred to the Wright brothers as "unspoiled, as though they were nobodies," and declared that the nation which failed to keep pace with the flying developments might get badly left in war.

Both Wilbur and Orville Wright made speeches, tersely expressing their thanks. Earlier in the evening they were guests at a dinner at the Ritz Hotel, given by the Aeronautical Society.

The Wrights had a conference with War Secretary Haldane to-day, but the War Office is not likely to conclude arrangements with the inventors until their aeroplane has had a trial in England in the presence of experts. Their engagements in the United States and Germany, however, preclude the possibility of their being able to attend this personally for some months.

MAINE NOW HAS AN AIRSHIP COMPANY.

PORTLAND, ME., May 3.—That the men of the "Pine Tree" State are progressive is shown by the incorporation here of the Flying Auto Company, which will manufacture and sell aeroplanes and dirigible balloons. The capital stock under the terms of the incorporation is to be $1,000,000.

FIRST WRIGHT FLYER GOES TO MUSEUM.

PARIS, May 1.—After a short but glorious career, Wilbur Wright's aeroplane, the one which went through the French campaign of 1908 and showed the world that flight was a reality, is about to be put in the Arts et Metiers Museum in Paris. According to the contract passed between the Wright brothers and Lazare Weiller, the machine should become the property of the French committee on fulfillment of the contract. This has now been done; but the committee, having no practical use for the machine, has decided to present it to the Paris museum, where it will occupy a position by the side of Ader's Avion, the first flying machine in Europe to rise from the ground, with Cugnot's steamer, built in 1770, and considered the father of the modern automobile, as a very near neighbor.

The Wright machine thus secured for the Paris museum was brought into France last year at a time when only one other similar apparatus existed. The other one was then in the hands of Wilbur Wright, but was practically put out of commission in the unfortunate accident at Fort Meyer. Both machines had been entirely built by the two brothers, even the engine being their own handiwork. The Wright aeroplane made its first public appearance on the Hunaudieres racecourse near Le Mans, but after a few short distance flights was removed to the Camp d'Auvours, further out of town, where its last flight was the winning of the Michelin prize by a journey on the last day of the year, lasting nearly two hours.

Now Wilbur Wright is using a French-built machine—made of American wood—and even his motor has come from a French factory. Fifteen of his machines are in actual service and others are almost ready for launching. Thus it was possible to remove the most glorious of them all from the flying ground and place it on a pedestal in a crowded city museum.

Gross II, Germany's New Airship, is to be stationed either at Metz or Cologne, on the German-French frontier. The dirigible is driven by two eight-cylinder Koerting motors of 75-horsepower each.

THE AUTOMOBILE

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ENDURANCE TESTS NOWADAYS.

Clean scores in profusion will not be features of the endurance runs and contests of the current season. Once it was undoubtedly necessary, in order to demonstrate to the general public the reliability of the motor-driven vehicle, to have events wherein the rules duplicated in some degree the actual touring conditions which a man might meet with in a cross-country run. But the buying public has come to realize that the average automobile answers satisfactorily to the needs of any reasonable owner, and hence, in order to make contests valuable and at the same time to retain general interest, the rules must be drafted in such manner as to call for a more rigorous scrutiny of the survivors than in previous years.

This doesn't mean, however, that all the glory goes to the car which evolves as the winner, for all others performing creditably and in excess of what is demanded by the amateur owner are certain to obtain a commensurate amount of publicity for participation. Of course, in the big, complicated and long-distance contests competitors are certain to be few unless they have resources tracing back to the factory itself. In events of a local character the tendency is toward contests wherein the real amateur can compete against his own kind, and thereby extract a profitable and pleasurable experience. Meeting with other fellow autoists he gains much from observation of their methods, and, furthermore, there is certain to be a greater spirit of helpfulness toward one another than is usually the case wherein trade interests somewhat interfere with candid expression of opinion and opportune aid in the way of suggesting how some remedy will meet the needs of the situation.

It is a difficut matter for the average onlooker to realize that things other than speed are involved in the running of a contest, and in consequence the repeated injunction of "Hit it up!" is certain to be heard for some time to come. The discriminating public, however, is beginning to learn that economy of operation and proven reliability are greater factors than speed in determining as to the car which best supplies all around utility.

True it is that there will be those who think that they must have excess speed, but the long distance traveler will continue to miss half of the delights of the healthful pastime in which he indulges in a swirl of dirt and leaves behind a trail of cuss words from those who consider him both partially insane and criminally inconsiderate of other users of the road.

* * *

NOW THE SLIDE VALVE ENGINE.

In the wake of the success of the British-Daimler slide valve engine, known as the Silent Knight, because of its American inventor, will doubtless come a number of motors along similar lines. This success was accentuated by the unusually severe tests to which the engine was subjected by the committee of the Royal Automobile Club.

The tests were such as very few makers of automobile engines would care to subject their products to, but in this case the Daimler company found it necessary to prove in an undoubted fashion the efficiency of their new motor. The discussion of this gained volume as time went by and no facts were forthcoming. Then it assumed the form of doubt and acrimonious reflections. Finally, the very life of the company being in jeopardy, in default of proof, the company decided to make a public trial that would prove once for all that their foster child was all that they had claimed for it.

The result of that trial is now well known, and with the publication of it the most carping of critics has become a rabid adherent. Any engine which can maintain for 132 hours a power output in excess of its rating, amounting to 42 per cent. of that rating, or that can maintain for five hours an output of 50 per cent. in excess, is good enough for anybody, regardless of principle or methods of construction.

If, in addition, a car equipped with the selfsame engine can run, immediately thereafter, a distance of nearly 2,000 miles on a basis of over 35 ton-miles per gallon—35.46 to be exact—it is then apparent that the engine is not only a good one, but a remarkably fine product and probably superior to many of the ordinary motors with mushroom valves.

This test and its unusual conclusion, without a particle of doubt, marks the beginning of an epoch in automobile engine design and construction—the slide valve epoch. While the engine of the automobile of to-day has improved in such marked degree that its earliest predecessor beside it looks like a bunch of junk, the final word has yet to be said, even though the improvement should be painstakingly gradual.

HOW NEW YORK OBTAINED A LIBERAL LAW

ALBANY, N. Y., May 3.—By the time this summary of what motor-vehicle legislation has been secured in New York this year is ready for issue, Governor Hughes may have signed the Hamn bill which outlines the new motor-vehicle law. Again, he may not, as the bill is among those the Governor may hold for 30 days. This bill embraces practically all there is to motor-vehicle legislation this year. In its Senate form it was killed by amendments in the Assembly, and was rescued in its Assembly form only the day before final adjournment. Its history is the story of the year on the subject.

It will be recalled that a year ago when the Legislature adjourned an agreement had been reached after several conferences and a bill introduced by Senator Armstrong and Assemblyman Hamn which contained no miles-per-hour clause and had an annual registration fee for autos. It did not pass, nor could the Governor be induced to recommend it for the extra session.

This year Senator Allds, who succeeded Senator Armstrong as the head of the finance committee, and Assemblyman Hamn reintroduced the old eleventh-hour bill of 1908 very early in the session. But nothing was done for three months. In fact, it became the policy of the autoists to press no sort of legislation of a general character, but to wait and ascertain what the Legislature was to do with Governor Hughes' recommendation that the registration fees on autos should be increased so as to provide a respectable fund for the repair of the improved highways of the State.

There was the usual grist of freak, hostile and restrictive legislation introduced, but the legislative leaders in both houses put a crimp in it from the start, and no committee reported a bill or bothered anyone with hearings on the bills.

Finally there was a conference called by the legislators at which the New York State Automobile Association, backed by the A. A. A. and the N. A. A. M.; and the A. C. A. and a few others, met and agreed without much difficulty on a bill which repealed the old motor vehicle law and substituted a new and revised motor vehicle regulation code, the chief feature of which was the abolition of the speed limit provisions of the old law and the substitution of a fair and equitable proposition putting motor-driven vehicles on the same basis as other users of the highways. Another feature was making horsepower the basis of tax or license fees and taxing the autoist for his registration certificate and number $4 a year for machines of less than 20 horsepower; $6 for those less than 30 horsepower, and $10 for all over 30 horsepower.

There were other new features, such as a licensing of professional chauffeurs and the issuance of different colored badges each year; the prohibition of permanent anti-skidding devices on wheels; the establishment of a $50 fine penalty, which is the limit of the jurisdiction of the country justice, thus taking out the absurdity of the old law where a fine of $100 and more was decreed, notwithstanding no justice in the rural districts could constitutionally impose a fine of over $50. There was at first a $2 fee for chauffeurs on commercial vehicles, but as this created classes it was deemed unconstitutional and dropped, the final draft of the bill making the chauffeur's fee flat at $5.

When the bill was first printed it left the enforcement through the collection of registration or license fees and badge or certificate issuing to the Secretary of State. Samuel Koenig, a Republican State committeeman, occupies that office now. He went to the legislative leaders before the bill passed the Senate and demanded more money to run that bureau in his office. Senator Allds, as head of the financial committee of the Senate and also introducer of the motor-vehicle law, did not coincide, and when the Secretary of State made the bluff that he did not want the bother of the auto tax collection, Allds prompty amended the bill to give the whole business to the State Highway Commission (where it properly belongs, as the motor-vehicle law is to be a section of the State highway law and was so passed). The bill passed in that shape under an emergency message from Governor Hughes, who was undeniably interested in its passage.

Then Koenig got busy with the Assembly. Assemblyman Hamn did not amend his bill as he was supposed to do and exclude the Secretary of State. He left it in the rules committee, and Senator Allds' bill was reported out. On the floor of the Assembly the next day Secretary of State Koenig's friends joined with the rabid, rural anti-auto Legislators for two things: to either change the Allds bill to put the collection of fees in the Secretary of State's office and cut out the State Highway Commission or to emasculate the bill and let it die.

Assemblyman Howard, of Tioga, who wanted a speed limit, the making of all regulations by villages, towns or cities without reference to what other regulations were made, and a higher tax, put his amendments up, and on a rising vote they were carried and put in the bill. That killed the Allds bill so long as the amendments remained in it. It could not be printed in time to pass regularly, and none would ask the Governor for an emergency message, and the autoists would not vote for the bill anyway while in that shape. The same night there was a conference with Sam Koenig, and on condition that the Hamn bill —identical with the Allds bill just amended save that it retained the Secretary of State as the fee collector—be passed the Koenig squad was called off from the opposition forces. As a further compromise and sop to the rural anti-auto legislators, the speed section was amended to take in the Connecticut law, making 30 miles an hour presumptive evidence of reckless driving when something happens. The "rules of the road" unintentionally omitted in the Senate bill were also put in. This and a few verbal amendments were all the changes in the bill, and thus the measure was practically what had been agreed upon before the bill started in the Senate.

This was passed in both houses the same day, and is now before Governor Hughes for his signature. It is the broadest gauge motor-vehicle law on any statute book, and purposely continues to omit that petty retaliation clause, which some autoists desire to have in, requiring every auto owner from another State where New York's license certificates are not recognized to take out a license here.

What takes the place of the old speed limit is section 287, and as amended in the Assembly when passed, reads thus:

"Every person operating a motor vehicle on the public highways of this State shall drive the same in a careful and prudent manner and at a rate of speed so as not to endanger the property of another or the life or limb of any person; provided that a rate of speed in excess of 30 miles an hour shall be presumptive evidence of reckless driving."

The rules of the road, to turn to the right when meeting and to the left when overtaking and passing, etc., are now in the bill to be a part of the highway law.

The Hill-Robinson bill to make joy riding a penal offense punishable as larceny went through, and to the Governor as a code amendment. It is provided for in the new motor-vehicle law, where both joy riding and malicious tampering with an auto is made a misdemeanor, and the chauffeur or other person may be fined $100 for doing it and sent to jail for six months and may also be suspended from privilege of operating an auto, if a chauffeur.

Secretary of State Koenig a few minutes after the Hamn automobile bill was passed, received a letter from William H. Hotchkiss, State Superintendent of Insurance, applying for license 1 under the new law. This is the first application received by Mr. Koenig. Superintendent Hotchkiss gave a full description of his touring car, his home address as 20 Lincoln parkway, Buffalo, and said that as soon as the blanks are issued he will be pleased to send in $10 for license No. 1.

STUDEBAKER PURCHASES CONTROL OF E-M-F COMPANY

DETROIT, May 3.—One of the most interesting deals with which the automobile world has ever been acquainted was consummated here Saturday when William E. Metzger, B. F. Everett and William Kelly transferred their interests, aggregating about one-third, in the stock of the Everett-Metzger-Flanders Company to the Studebaker Automobile Company, of Cleveland. The change involves a complete reorganization of the Everett-Metzger-Flanders Company, W. E. Flanders becoming president and general manager, C. L. Palms and Dr. J. B. Book remain on the directorate, and the new stockholders will secure two directors, one of whom will be Hayden Eames, of Cleveland, and the other Fred. S. Fish, general manager of the Studebaker Wagon Company, of South Bend, Ind.

Not the least important feature in connection with the deal, both to this city and the trade at large, is the entrance of the Studebakers into the automobile field on a scale in keeping with their operations in the vehicle line. Studebaker cars are well and favorably known, but this places the concern in the forefront in the medium-priced field that has already proved so profitable. The Studebaker Automobile Company, which is under their direct control, will after September 1 next become sole distributors of the E-M-F. "Thirty" cars.

The price paid by the Studebaker Automobile Company for the Metzger-Everett-Kelly stock is not made public, but it is known to have been between $700,000 and $800,000. This furnishes some interesting information regarding E-M-F affairs. The company was organized eight months ago, succeeding the old Wayne Automobile Company. Its capitalization was $1,000,000, of which Metzger and Everett held one-third, Kelly's interest being about $75,000. In the transfer just made the two former are known to have received approximately $4 for every dollar of money they had invested.

That the price paid by the Studebaker company was not exorbitant, but that, on the other hand, it must be regarded as a gilt-edged investment is shown by the fact that during the eight months it has been in existence the net earnings of the E-M-F company have been $800,000. Not only this, the business is exceeding all expectations, the daily output of "Thirties" now being between 65 and 70.

The success of the concern is directly attributable to the efforts of two men—W. E. Flanders and E. LeRoy Pelletier. Flanders is recognized as one of the foremost factory men in the automobile world, and the fact that the E-M-F company will produce 7,500 cars this season reveals his ability in this direction in an unmistakable manner. Pelletier, whose fertile brain is responsible for tons of bright "copy," has made the E-M-F "Thirty" famous throughout the land. The change will in no way affect him, as he will remain as advertising manager of the reorganized company.

It is rumored that James Heaslett, formerly with the E-M-F company, will be made chief engineer, taking the post Mr. Kelly occupied. Mr. Heaslett is well known to the trade, having been identified with the Rainier and other companies as engineer. He designed practically all the Studebaker cars. Messrs. Metzger and Everett have not determined what they will do in the future. Both will spend some months traveling in Europe, taking life easy until next Fall, when there are intimations that they will once more enter the automobile field.

"OVERLAND" NEWS FROM TOLEDO.

TOLEDO, O., May 3.—The Kinsey Manufacturing Company, of Dayton, will move to this city about the first of July, and after that date will be maintained as a subsidiary concern to the Overland Automobile Company. The Kinsey Manufacturing Company is a large manufacturer of automobile parts, the principal portion of its output having been absorbed to date by the Stoddard-Dayton and the Overland companies.

Isaac Kinsey, principal owner of the concern, has sold his interests in the Dayton plant to the Dayton Motor Car Company, which will continue manufacturing automobile parts on a reduced scale, while the company proper will be removed to Toledo. This procedure was followed that the company's name might be transferred to the business in this city.

That Hitch in Pope Sale to Overland.

A temporary hitch has been experienced in the transfer of the Pope Motor Car Company's plant to the Overland Automobile Company. When the local concern built several additional buildings some years ago they were located on some of the city's property, which consisted of an unopened street. Now, in negotiating for the sale of its property, the Popes are unable to give a clear title, and the purchasers desire a bond insuring them from any trouble, a thing which the Popes will not agree to do. It is likely, however, that the city will vacate the street and give a good title, as the street is only 600 feet long and is in a part of the city which will never allow its being needed.

CARRIAGE CO. TO BUILD AUTO WHEELS.

The Shortsville Wheel Company, of Shortsville, N. Y., is preparing to go into the manufacture of automobile wheels, in addition to continuing its manufacture of carriage wheels, and has purchased a complete outfit of machinery for the purpose from the Defiance Machine Company, Defiance, O. The new department is to be entirely separate from the carriage wheel plant, and it is expected that a new factory will be erected in the Fall.

NIEUPORT MAGNETO WORKS FOR DETROIT.

DETROIT, May 3.—While complete details are lacking, it is known positively that the Nieuport Magneto Company, makers of the famous French magneto, will in the near future establish an American branch in Detroit. The men interested in the enterprise have been looking over American territory for some time with a view to selecting a location for a plant. The clinching argument was supplied when a local automobile manufacturer expressed his willingness to contract for a large number of Nieuport magnetos, provided they were manufactured here.

Whether the company will manufacture magnetos in their entirety at the outset, or import the parts and have the assembling done on this side, depends largely on the success met with in securing a sufficient number of skilled employees. However, it is the intention to ultimately build a plant that will furnish employment to several hundred persons, next year's output of magnetos being placed at 25,000. French capital will, it is understood, hold a controlling interest of 51 per cent., the rest of the capital being supplied by Americans.

Zeglen May Locate in Detroit.

Detroit also may shortly number among its industries a factory devoted to the manufacture of a puncture-proof and impermeable automobile tire. C. Zeglen, of Chicago, has been here for some days looking for a site for a factory for the manufacture of auto tires that will employ in the neighborhood of 2,000 persons. Zeglen is maker of a bullet-proof cloth, and controls patents for a puncture-proof tire composition.

YORK ALSO MAKES ITS ENGINES.

YORK, PA., May 3.—The York Motor Car Company desires to have it unmistakably known that in addition to the manufacturing of its parts, it also makes its own engines. An article in THE AUTOMOBILE of recent date excepted the engines, and the York company desires to have the fact known that such is not the case, for it particularly prides itself upon the motor of the car.

General Managers Miles and Reeves Were Treated to a Tour of Fulton County and Were Guests at a Fried Chicken Supper.

MILES AND REEVES FIND FOR ATLANTA SHOW

ATLANTA, GA., May 1.—When S. A. Miles and Alfred Reeves, heads of the two big national associations of automobile manufacturers, returned to New York last night they had tentatively announced the dates of Atlanta's first show as November 27 to December 4, and also had made careful plans for the arrangement of exhibits in the big new Auditorium-Armory.

Atlanta's show has been in the air now only a few months. It was proposed by Atlanta's newspapers and worked up by the Atlanta Auto Trades Association, an organization formed for that very purpose; the Fulton County Automobile Club, and the Atlanta Chamber of Commerce. A few months ago delegates from these bodies went to New York and won over the joint approval of the big manufacturing associations.

This visit to Atlanta of the representatives of these organizations was the result, and the city spread itself to give the delegates a good impression. There were meetings with the Atlanta organizations interested, a careful inspection of the Auditorium-Armory, a tour of Fulton County in a fleet of Whites, and a regular "fried chicken supper" at the Fulton County Automobile Club's new house.

It was at the meeting of the directors of the Chamber of Commerce at which the show proposition was definitely completed. Those present, besides Messrs. Miles and Reeves, were:

President Candler, President Edward Inman, of the Automobile Club of Fulton County; E. W. Gans, president of the Atlanta Auto Trades Association; Major John S. Cohen and Clark Howell, of the Atlanta committee, who went on to New York and secured the show; S. E. Davidson, Frank Weldon, Frank S. Ellis, Rawson Collier, Asa G. Candler, Jr., Beaumont Davison, F. L. Seely, F. J. Paxon, D. Woodward, V. H. Kreigshaber, Mell R. Wilkinson, H. A. Maier and Secretary Walter G. Cooper, of the Atlanta Chamber of Commerce. The contract as drawn up between the Atlanta committee and the National Association of Automobile Manufacturers was read, and the Chamber of Commerce gave its unanimous sanction and approval.

Clark Howell, at the request of the meeting, outlined the preliminary steps which led up to securing the sanction of the two automobile associations upon the Atlanta show, and secured an agreement whereby the two associations which hold shows at different times and in different buildings in New York City each year will work together in the Atlanta show just as they have done heretofore only in Chicago.

A New York-Atlanta reliability run has been scheduled to precede the opening of the show, the New York *Herald* and Atlanta *Journal* being the most energetic in the project.

The Auditorium-Armory in which the first big show in the South will be held is a by-product of an effort to have an exposition in Atlanta in 1910. About $250,000 was raised for this purpose, but that was not considered enough to give a suitable "world's fair," and the men who had subscribed the money agreed to lend it to the city of Atlanta for the purpose of building an auditorium. The city agreed to pay back something like a third of the amount this year and gave it as an opinion that future administrations would pay back the remainder in smaller installments. The men who had put up the money agreed to take the chance, and the building was constructed. Committees of citizens and the architects examined every big auditorium in the country, spending weeks of time and thousands of dollars before they decided on plans. The result is a building which is as admirably suited for an auto show as it is for other purposes.

GEORGIA WANTS MORE AUTO RACING.

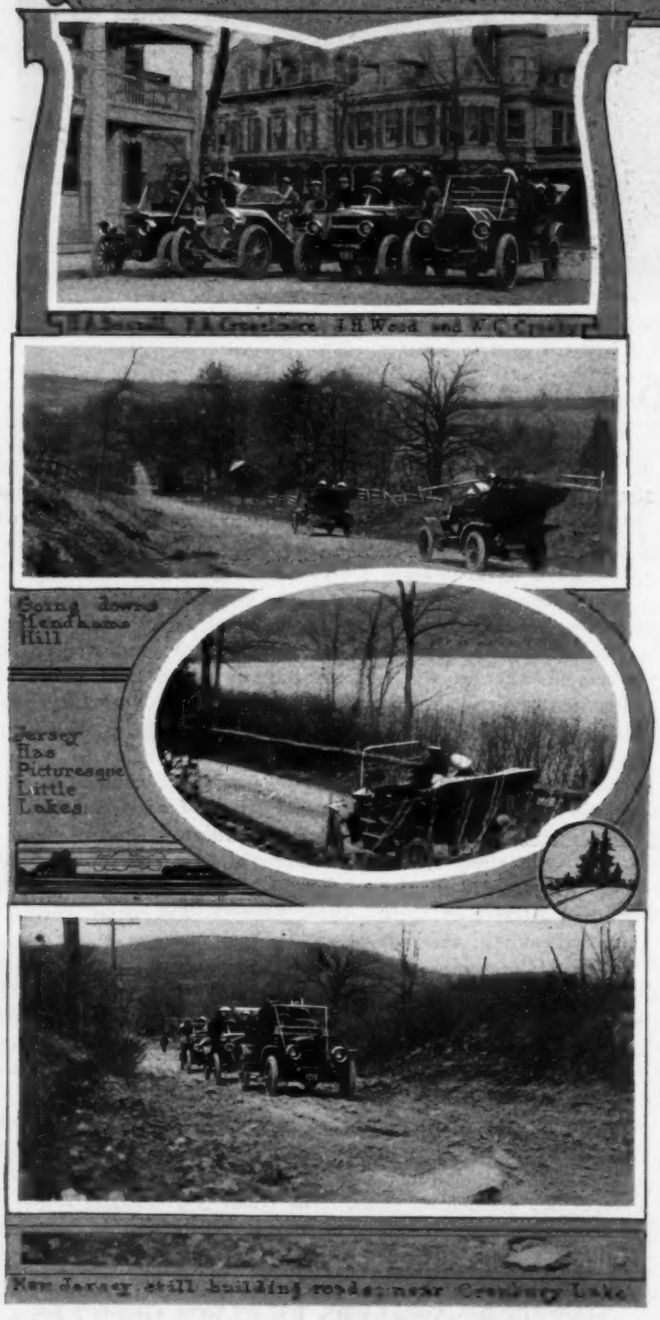
SAVANNAH, GA., May 3.—The three-day race carnival which is to be held in Fitzgerald, Ga., June 15, 16 and 17 is attracting wide attention just now in the automobile world. The course will be guarded by the State troops just as the Grand Prize race was in Savannah, and the races that are to be run are promised to be the best the South has had since the Grand Prize race.

If nothing about the Grand Prize race is heard from the Automobile Club of America in a very short time, steps will be taken by the Savannah Automobile Club to secure a race. It has been said that many of the members of the Savannah club are in favor of having their own cup, and if nothing develops it is probable that this will be done.

HARTFORD DEALERS RE-ELECT OFFICERS.

HARTFORD, CONN., May 3.—At the annual meeting of the Hartford Automobile Dealers' Association the following officers were re-elected: President, Ralph D. Britton; vice-president, Louis H. Elmer; secretary, S. A. Miner. The association already has plans under way to the 1910 show, which is to be held the second week in February. The following show committee was appointed: T. Dudley Riggs, chairman; B. F. Smith and R. D. Britton. Mr. Riggs resigned as chairman, and B. F. Smith was substituted. A uniform schedule for care and storage of cars was adopted, as follows: Storage for touring cars by the month will be $20, and $15 for runabouts. This price, it is announced, also includes washing and polishing of cars.

REAL ROADS AND SCENIC BEAUTY FOR JERSEY ENDURANCE RUN



NEWARK, N. J., May 3.—Arrangements are practically complete for the amateur endurance run of the New Jersey Automobile and Motor Club, scheduled for May 22, over a 95-mile circuit, which will be twice covered, thus giving a total distance of 190 miles.

Of course the start will be from Newark, and Hackettstown, 42 1-2 miles exactly half way, will be the only other checking place. The route includes some of New Jersey's best roads and most picturesque scenery, but there are some stretches of highway which could be improved upon.

To Hackettstown the course is one long ribbon of macadam, with the exception of Schooleys. Then comes the run through the prettiest section of country touched by the tour, near Tranquility. Beyond there will come the crucial test. If it is rainy during the run, or just preceding it, the drivers will have their hands full in reaching Stanhope with clean cars or clean scores; if it is dry and the weather is fine, they will encounter roads that are not macadam and which in some parts may be partially blocked by road repairing operations, but nothing that should hamper them seriously. It may be a bit hard on tires, but otherwise will cause little trouble.

Recently the committee in charge of the contest, H. A. Bonnell, chairman; F. A. Croselmire, A. D. Le Messena and H. A. Bowman, made a second tour of the circuit and found the route in better condition than on the original journey, some three weeks before.

The matter of observers has been satisfactorily settled by arranging to have students in the graduating class at Stevens Institute of Technology at Hoboken act in the capacity of officials. These men all have had an engineering training and know the difference between a spark plug and an inner tube. Most of those who will act have expressed a desire to stay on duty for the entire ten hours. No man will be allowed to stay on the same car for the complete run, however, but each will be shifted to another car when he reaches Newark at the end of the first lap, at about 1 o'clock.

CONNECTICUT DOESN'T WANT COMMISSIONER.

HARTFORD, CONN., May 3.—That pressure brought to bear from all quarters of the State to suppress the proposed bill for the creation of the office of commissioner of motor vehicles was successful is evident from the fact that the scheme has been practically abandoned, at least as originally outlined. There was much opposition to the proposed measure, and various officials of the Connecticut Automobile Association, of which W. F. Fuller, of Hartford, is president, were at odds over the matter, one faction being for and another against the proposed bill. Senator J. W. Alsop, Senate chairman of the committee on roads, rivers and bridges, made a motion in the Senate that this bill, together with the proposed amendment to the motor vehicle law proper, be recommitted to the committee. It is the intention of this committee to redraft the measures and make such changes as are deemed necessary. In the motor commission bill the committee has decided not to recommend the appointment of a commissioner at a salary of $2,500, but instead to leave the enforcement of the law with the secretary of state (which is the present arrangement), and to provide for the appointment of a "supervisor of motor vehicles" at a salary of $2,000 per year. The term of office is to be for four years, and appointment will be by the secretary of state, who shall also have the power to summon witnesses to hearings on complaints. The new bill does not clip the wings of the secretary of state, so to speak, as did the original proposed measure, much to the satisfaction of the opposition contingent regarding the original bill.

Aviation Grounds on Motor Parkway.—The meadow opposite the grand stand of the Long Island Motor Parkway has been made the official aviation ground of the Aero Club of America, according to President Cortland Field Bishop. Rights have been acquired for the erection of the necessary buildings. The Automobile Club of America will direct and control all aviation contests and have custody of the prizes, under authority of the International Aeronautic Federation.

What the Clubs are Doing These Days

A. C. OF PHILADELPHIA NOW HAS 740 MEMBERS.

PHILADELPHIA, May 3.—For the convenience of its rapidly growing membership the Automobile Club of Philadelphia has been compelled to establish easily accessible quarters on the ground floor of the Hotel Windermere, at the northwest corner of Broad and Locust streets, diagonally across from the Hotel Walton, where the Quaker City Motor Club holds forth. A suite of three rooms has been secured, consisting of assembly, reading and map rooms, where members will find all the necessary maps and data for laying out tours, etc. By an arrangement with the hotel management, the club has the benefit of most of the facilities afforded by a separate club house—restaurant, baths, barber shop, bar, cigar stand, etc., being located on the same floor with the A. C. of Philadelphia suite.

The club charter has been so amended as to permit of an increase in the number of directors to not less than nine nor more than twelve, the terms of office of one-third to expire each year. A limit of 1,000 has been placed upon the membership, and the maps, routes and signs committee and the touring information committee have been combined under the chairmanship of W. O. Griffith. Arrangements have been made whereby members of the club can secure fire and liability insurance, or either, at lower rates than when applying personally. Sixty-six new members were admitted at the last board meeting, and the total on the rolls is now 740 in good standing.

ACROSS PENNSYLVANIA AND RETURN RUN.

PHILADELPHIA, May 3.—After looking up the numerous routes for crossing the State, the Quaker City Motor Club has determined upon the one to be taken in its June run to the Smoky City and return. Starting June 14, the contestants will follow the usual route to Reading and will then leave the Harrisburg route and strike northwest to Pottsville, Bloomsburg and Williamsport, where the night stop will be made, a distance of 180 miles. From Williamsport to Johnstown, 143 miles, will be the course on the next day, through Lock Haven, where all the paper for government money is made, Tyrone, and Altoona. Mountain climbing will be a feature throughout the second and third days of the contest.

Pittsburg is merely touched on the third day, leaving Johnstown in the morning and traveling 72 miles for lunch, through Blairsville and Wilkinsburg. Turning eastward again in the afternoon, the roads through Greensburg, Holidaysburg, Huntington and Reedville to Lewiston will be taken, 93 miles, making the distance for the day 165. Philadelphia is about that same distance from the night control, and will be reached over the route through Harrisburg and Lancaster. The entire trip will be about 725 miles in length.

PRICE CLASSIFICATION FOR SPORT HILL CLIMB.

BRIDGEPORT, CONN., May 3.—The climb of Sport Hill this year will be conducted by the Automobile Club of Bridgeport under the price classification recently announced by the A. A. A. This was decided upon at a recent club meeting and is one of the last matters to be definitely arranged. The climb will be held May 31, and will include nine classes. President Frank T. Staples has offered a handsome silver trophy for amateur driver, and the Board of Trade trophy and the one given by the Isotta Import Company, of New York, will again be open to competition. State troops will patrol the course and A. L. Riker will again act as referee. Entry blanks are now ready and may be secured from Ralph M. Sperry, Box 518, Bridgeport, Conn.

IOWA AUTOISTS STRENGTHENING STATE BODY.

MARSHALLTON, IOWA, May 3.—With the election of the Iowa State Automobile Association to membership in the A. A. A., the work of further organization of automobilists in the cities of Iowa is rapidly progressing. The charter members were the clubs of Council Bluffs, Marshalltown, Mason City and Sioux City, these incorporating the State body soon after forming it. Five other cities are now interested in the work, Dubuque, Davenport, Cedar Rapids, Boone and Fort Dodge.

The officers of the association are: President, Dr. T. B. Lacey, Council Bluffs; first vice-president, H. B. Groves, Sioux City; second vice-president, A. J. Zingre, Mason City; secretary, D. J. Denmead, Marshalltown; treasurer, W. H. Hanthorn, Mason City. These with J. L. Denmead, of Marshalltown, constitute the board of directors.

CROSBY PRESIDENT OF JERSEY'S BIGGEST CLUB.

NEWARK, N. J., May 3.—Without an opposition ticket, the annual election of the New Jersey Automobile and Motor Club was held to-night. These are the new officers selected: President, W. Clive Crosby; vice-president, Clarence H. Bissell; secretary, A. B. Le Massena; treasurer, George H. Simonds; trustees, H. D. Bowman, Jay L. Adams, Jr., and Paul E. Heller.

The new president of the organization is also president of the Associated Automobile Clubs of New Jersey. Reports of officers showed that the club has a membership of more than 1,500 and is the second largest in that regard in the A. A. A.

KNOXVILLE AUTOISTS FORM A CLUB.

KNOXVILLE, TENN., May 3.—Automobile interests in this city have been focused through the organization of a local automobile club. About twenty-five autoists met recently and elected the following officers: President, W. J. Oliver; vice-president, N. E. Logan; secretary, E. G. Oates; treasurer, U. D. Beeler. Several matters will receive the attention of the body, among them being the local speed regulation, the improvement of good roads around the city and the development of sport. There are no mountains which would give a chance for a climb similar to that of the Lookout Club at Chattanooga, but the pikes would be suitable for speed events.

BALTIMORE'S ORPHANS TO BE ENTERTAINED.

BALTIMORE, May 2.—The committee of the Automobile Club of Maryland in charge of the Orphans' Day outing, June 9, is arranging to make this event by far the best ever held. At least 500 children will be cared for this year, and the committee has assurances of enough cars for the purpose. The start will be from the center of the city, through Druid Hill Park to Electric Park, where the orphans will have refreshments and be the guests at an entertainment. The outing committee comprises E. A. Dolle, chairman; Dr. H. M. Rowe, Frank W. Darling, C. Howard Milliken, J. M. Zamoiski and James S. Reese.

MONTREAL CLUB SECURES OILED ROADS.

MONTREAL, May 3.—Co-operation between the Automobile Club of Canada and municipal authorities has resulted in the decision of the latter to have the city road department oil Park avenue, from Pine to Mount Royal avenues, in order to prevent dust. A combination of oil and coal tar will be used, and it is hoped that adjoining cities and country officials will see the advantage of the plan and do likewise.

Alco Tourabout Fitted with Special Alco Top.

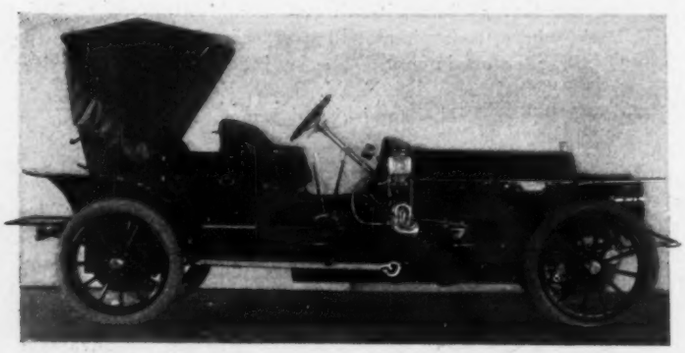
HOW A NEW SPARK PLUG WAS INTRODUCED.

In this era of modern advertising the marketing of a new product is not only unique and successful, but the campaign is often wonderful in its results. This is true of the plans carried out in the introduction of the Red Head spark plugs by the Emil Grossman Company, of New York, and shortly to be reproduced in bringing public attention to the hydraulic windshields made by the same concern.

In the latter part of February the campaign was started through the use of considerable advertising space in THE AUTOMOBILE, *Motor Age* and one other paper, just mentioning the name "Red Head," followed by another series stating, "Red Head Is Coming," "What Is Red Head"? and "Everybody Is Talking About Red Head." The advertisements of small size each were sprinkled through the papers, and March 4, inauguration day, the Red Head spark plug was announced in double-page advertisements printed in colors, while in the same issue appeared a number of small cards using the words, "Red Head Is Here." On that day Mr. Grossman, who was in Chicago, sent out 550 telegrams to dealers calling attention to the advertisement in the various papers.

This first public announcement March 4 was followed by the first delivery March 16 by the manufacturers and in the issues of April 15, just one month later, there appeared a full page giving the names of 56 leading supply houses in 25 States which were then carrying in stock a full line of these plugs, covering the United States and Mexico from the Atlantic to the Pacific and from Maine and Oregon to the Gulf. Moreover, the number is increasing daily and demands became so urgent that the concern was influenced to insert an advertisement of a different character as early as April 1, which said: "Have a little patience! Red Head spark plugs are coming through as fast as human hands and improved machinery can make them." The advertisements, as a rule, are composed simply of a picture of the plug with the trademark prominent and little wording, only a few of the displays making comment on the features of the plug, the mere appearance seeming to bring orders from dealers, jobbers, and many automobile manufacturers.

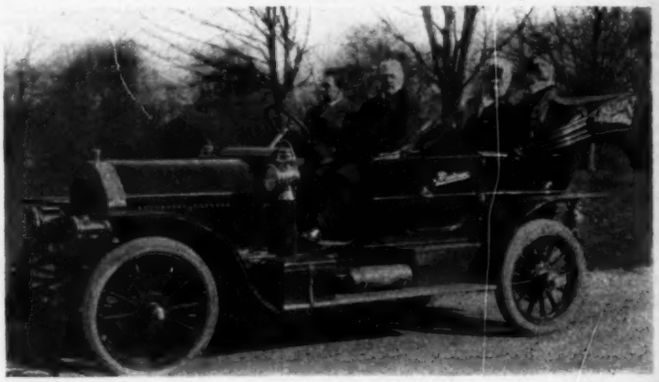
After the first popularity was indicated from the results attained by the use of THE AUTOMOBILE, *Motor Age* and another publication, Mr. Grossman determined to attempt still another type of exploitation: that of supplying manufacturers, dealers and users with sample plugs with the proviso that they must be given a hard test and then the results made known. Consequently every dealer was supplied with an order blank in duplicate authorizing the delivery to them of two spark plugs each from any jobber and 15,000 plugs were thus distributed. At approximately the same time the manufacturers' interest was secured through offers to furnish them any number of Red Head plugs between 2 and 100 to be used by testers and reckless drivers with orders to resort to any means that "puts other plugs 'out of business'" and to note the result upon the Red Head. A campaign to the owners is being planned.



Six-Cylinder 48-Horsepower Pierce Arrow Miniature Tonneau.

DETROIT HAS DELAYED IN TAXICABS.

DETROIT, May 3.—The old horse-drawn coaches and omnibuses that have for so long been a familiar sight to travelers stopping in Detroit, will be supplanted in a large measure by taxicabs in the near future. The Detroit Omnibus Lines Company, holding the contract rights for transferring travelers between railroad stations and steamboat landings, and also maintaining carriage stands about the city, has made arrangements with the Detroit Taxicab Company to place 75 taxis in commission.



Agent Evans' Frontenac with the Oldest Automobilist.

In the automobile carnival parade of Monday in New York City J. J. Evans, general agent for Frontenac cars, had as a passenger, Mrs. F. D. Cottle, who was 100 years old on March 12, 1909. She occupied the rear seat to the left of Mrs. Evans.

WHAT PART IS THE STRONGEST?

In the majority of cases where an automobile owner is asked as to his idea of the strongest part of an automobile he will mention such parts as the piston wrist-pin, the crankshaft, gears or driving axle. There is a great strain on these parts, to be sure, but when the question arose recently in the Pierce-Arrow Motor Car Company's factory it was settled, according to an official of the company, by going to the testing laboratory, where records are kept of the strength of the component parts entering into cars. The engineer in charge stated that the valve springs show the greatest tensile strength, reaching 272,211 pounds to the square inch in tests. The nearest to it was a French steel which tested 237,787 pounds.

RIDER-LEWIS COMPANY IS INCORPORATED.

MUNCIE, IND., May 3.—Articles of incorporation have been filed with the county recorder by the Rider-Lewis Motor Car Company, of Anderson, Ind. The capital stock is $400,000, of which $50,000 is preferred. The directors for the first year are: Clermont Rider, Muncie; George D. Rider, Kentland; Ralph C. Lewis, J. W. Lovett, Anderson; Arsomas Burkdoll, Chicago; H. D. Lingle, Denver, and C. A. Ulsh, Rising Sun. The factory is being built in Anderson and will manufacture automobiles, cars, trucks, buggies and all kinds of motor-driven vehicles.

A Typical Frontiersman.

Mr. Guggenheim Greets the Pathfinder in Wyoming.

Miller Meets Acquaintances.

A STATEMENT FROM THE M. C. A.

By order of the advisory committee of the Manufacturers' Contest Association, a press notice was issued April 29 under the heading of "M. C. A. Corrects a Misstatement." Herewith is the material:

A statement has been issued to the daily press by the promoters of the New York to Seattle contest, specifically stating that the rules of the contest have undergone certain changes "pursuant to the recommendations made by the Manufacturers' Contest Association at their meeting of April 6."

This statement is misleading and without foundation. The Manufacturers' Contest Association did not hold a meeting on April 6, nor has it officially made any recommendations whatever respecting a change in the rules governing this contest. At its only meeting held March 30, the members declined by resolution to support the Seattle contest for stated reasons.

The promoters have very sensibly undertaken to correct many of the objectionable portions of their rules, but are entirely without authority to make a public statement that the changes have been made at the recommendation of the M. C. A., for that organization has within a week by mail vote declined to re-open the subject of the New York-Seattle contest, having already officially disposed of it.

By order of Advisory Committee,
MANUFACTURERS' CONTEST ASSOCIATION.

It is understood that several M. C. A. members were not unfavorable to the event under revised rules, but they have accepted without comment the decision of the majority.

Seattle now has an Aeroplane Club, through the organization, in the western city, of a number of those interested in aviation, and that the club is in earnest is shown by the trip of its president, Harry Whitney Treat, to New York, to purchase a real aeroplane, and to arrange for an affiliation with the Aero Club of America.

A STATEMENT FROM THE PROMOTORS.

From Mills & Moore, the Eastern representatives, comes a press notice, released May 3, wherein is reaffirmed a claim of 13 entries made with 11 having paid the fee. The notice reads:

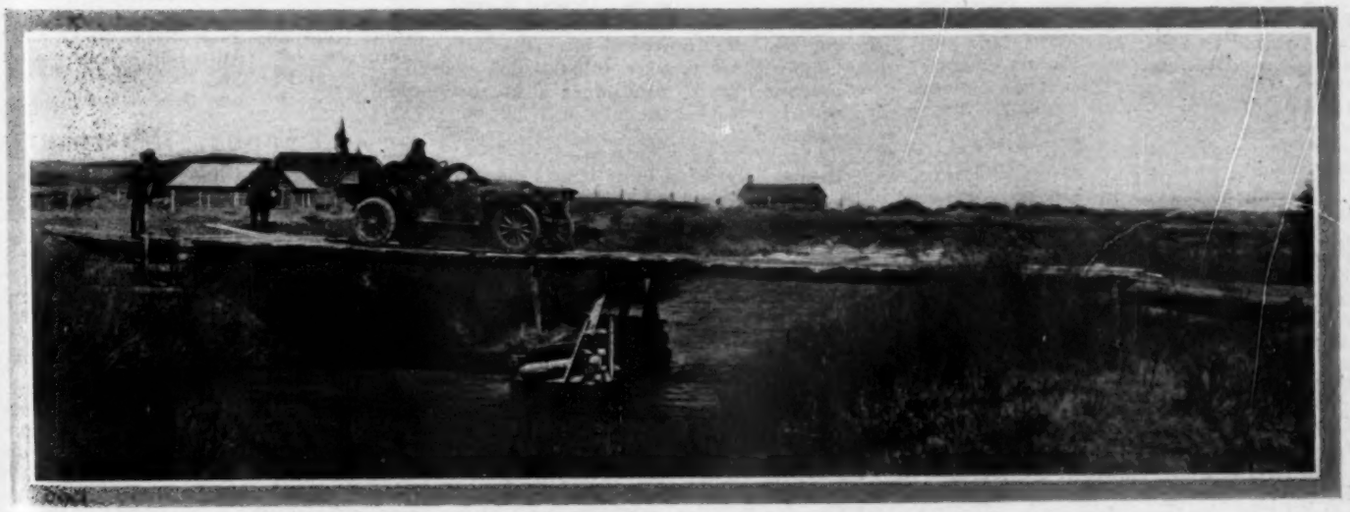
Some doubt has been caused in the public mind as to the attitude of the Automobile Club of America, in view of the activities of certain opponents to the Ocean-to-Ocean Contest. Chairman Robert Lee Morrell of the Contest Committee was asked as to the result of the letters reported to have been sent by the manufacturers to the president of the A. C. A., requesting that the club's sanction be withdrawn.

Mr. Morrell stated that the club's sanction would not be withdrawn and that the club's position had not been varied; that it would see that the contest be properly conducted and that the $5,350 in cash prizes, which had been deposited by M. Robert Guggenheim and which was now in the hands of the Automobile Club of America, would be paid to the winners.

When asked if the number of entries would have any effect on the attitude of the club, Mr. Morrell said: "Not the slightest; if the Seattle Automobile Club and the Alaska-Yukon-Pacific were prepared to start only one car June 1, the club will be ready to carry out its obligations as the sanctioning body." This statement should set at rest, once and for all, the rumors that have been given circulation that the contest did not have the full support of the Automobile Club of America.

C. M. Hamilton announced Wednesday that he has practically completed arrangements to enter the transcontinental contest, with an Isotta standard 40-horsepower car.

Twenty entries have been received by the Swiss Aero Club for the Zurich Gordon-Bennett event, starting on October 3. This is three less than last year, but it may be that late entries will be forwarded. Switzerland, Germany, France, Italy, and Belgium are represented by three balloons each, Spain two, and England, the United States, and Austria pin their faith to one.



Typical Western Country Met with in Wyoming, Where Bridges Are to Be Crossed with Much Caution.

In Front of the Pennsylvania Capitol in a Franklin.

In the background, at the end of the avenue, in Harrisburg, is shown the $13,000,000 State Capitol of the Keystone commonwealth. On the front seat of the air-cooled Franklin, Model G, are J. Cyde Mason, secretary of the Harrisburg Motor Club, and James Bell, of the Harrisburg Board of Trade.

An Amateur Trans-Continentalist.—From San Francisco to Portland, Me., and then back to the Pacific Coast by way of the northern route to Seattle is an automobile trip to be made this Summer by Mr. and Mrs. C. A. Littlefield, of Oakland, Cal. Mr. Littlefield has given considerable time and expense to preparations, both as regards his car and routes and roads. Marsh quick acting rims with Diamond 36 by 5 tires all around will be used, and the trip East, which will be by way of Los Angeles, New Orleans and Washington, includes also a visit to the Diamond rubber factories in Akron, O. The return journey will be via Buffalo and Chicago, thence for the most part along the route of the New York-Seattle endurance event.

Cameron Raises the Price.—The Cameron Motor Company of New York City, distributors of the four and six-cylinder air-cooled Cameron cars, announce an advance in price of three, four-cylinder models, as follows: Model 14, runabout, formerly $900, raised to $950; Model 14, three-passenger roadster, $950, raised to $985; Model 16, four-passenger roadster, $1,050, raised to $1,100. Harry Doherty, vice-president, states that the demand for the company's product is exceeding the most sanguine expectations, and that arrangements are already being made for the 1910 season.

Firestone Believes in Tire Contest.—With the approach of the Glidden Tour, and the discussion of penalties, H. S. Firestone, president of the Firestone Tire & Rubber Company, states that he favors a system of penalizations for tire troubles. He says: "A large per cent. of the stops en route are made because of trouble with tires, and it seems strange that tire service is not connected more closely with automobile efficiency. Penalties for weakness would inevitably raise the prevailing standard of tires."

Many One-Lung Autos in California.—H. J. Neumann, a Los Angeles, Cal., autoist, in sending along his renewal subscription to THE AUTOMOBILE says: "People out in this country are just waking up in the buying of up-to-date cars, for I think all the one-lungers in the whole country are now used here, where we have a different name for almost everything pertaining to the automobile. For instance, most folks call a windshield a glass front."

Remy Equipments for Older Models.—The manufacture of equipments for attaching its magnetos to early models of automobiles has proven a success, according to the Remy Electric Company, Anderson, Ind. Many owners of cars built as recently as 1907, not originally designed to have a magneto have been furnished with them, and the company is making and keeping a full set of fittings, with instructions for attaching.

Benz Importers Have Open House.—To celebrate the recent victories of the Benz racing car, the Benz Auto Import Company, of America, had an "open house" on last Saturday, with "scribes and good fellows" as guests. Incidentally the Sir Thomas Dewar $2,000 trophy, which was won at Daytona, was shown, and the improved business outlook made the cause for felicitations.

Cheyenne, Wyo., announces a Motordrome.—The Cheyenne Motor Club has announced that it has completed plans for the construction of a five-mile automobile race track to built near the city. There will be a course within a course, banked curves and other features.

New Men in Gramm-Logan Company.—The Gramm-Logan Motor Car Company, Bowling Green, Ohio, has added to its officials several leading men of the Lima Locomotive & Machine Works. Increased capital and factory facilities have been obtained.

RECENT BUSINESS CHANGES.

Gibney Brothers Have New Quarters.—James L. Gibney & Brother, the Philadelphia distributors of Continental tires and general dealers in Gibney solid tires and accessories, in order to relieve a cramped condition in their present quarters at 211-213 North Broad street, have secured the building next door at 215-217, and are having it thoroughly overhauled. The new store will soon be ready and will give a large, well-lighted salesroom, offices, stock rooms and tire repair shop. The building is a large three-story one, equipped with an electric automobile elevator and power.

Four Traction Auto Company Looks for Factory Site.—Minneapolis may be the location of the Four Traction Auto Company, the maker of the Kato trucks, according to factory officials. At present the machines are built at Mankato, Minn., but the necessity of increasing production has made a larger plant imperative, and Minneapolis sites have been examined. The concern was recently capitalized at $200,000, and has a large business in making trucks, patrol and fire wagons, all with the four-wheel driver, which has been such a marked success.

Luitweiler Pumping Engine Company Moves East.—Rochester, N. Y., will soon be the location of the Luitweiler Pumping Engine Company, now situated at Los Angeles, Cal. The plant of the American Laundry Company has been purchased, and will be occupied about June 1, after extensive alterations are completed. The concern is engaged in building automobile fire apparatus, and steam, gasoline and electric pumping engines.

Utica Pliers and Nippers Marketed Direct.—The Utica Drop Forge & Tool Company, of Utica, N. Y., is now marketing its products, pliers and nippers, direct to the trade. The new policy was begun on April 1 and has been found successful. The plant is in full operation, more than an acre of floor area being under one roof, with over a mile of industrial railroad between the various departments.

Davidge Motor Car Company in Binghamton, N. Y.—John M. Davidge, of Binghamton, has filed a certificate with the county clerk, announcing that he will go into business under the name of the Davidge Motor Car Company.

Birmingham Auto Company Changes Hands.—Leo Loeb and J. H. Loveman, of Birmingham, Ala., have purchased the Birmingham Auto Company, carrying with it the agency for the Chalmers-Detroit and Thomas cars.

Nesmith Buys Auto-Shine Company.—The C. I. Nesmith Company, Reading, Mass., has recently purchased the Auto-Shine Company, of Buffalo, N. Y., manufacturers of "Auto-Shine" a varnish restorer and polish.

IN AND ABOUT THE AGENCIES.

Fry Spark Plugs.—The Standard Sales Company, of New York City, is introducing to the trade the Fry spark plugs, made in 1-2 inch, metric, and A. L. A. M. sizes, with interchangeable porcelain and mica cores. Manager J. Stewart Smith is enthusiastic over the future, which the simplicity and reliability of the plug insure.

United Manufacturers Establish Branch Offices.—The following distributing centers and branch offices have been opened by the United Manufacturers: Chicago, 1430 Michigan avenue; Detroit, 225 Jefferson avenue; Cleveland, 1932 Euclid avenue; Philadelphia, 422 Commerce street; Boston, 109 Massachusetts avenue.

Rambler, Atlanta, Ga.—The Rambler has just broken into Atlanta, with Baynard Willingham in charge of the agency. A warehouse has been converted into a comfortable and commodious garage at 70 South Forsythe street.

TAXICABS AND TRANSIT.

Philadelphia to Have Auto Patrols.—Director of Public Works Clay is contemplating the installation of an automobile patrol service. Garages for this service are to be built at the new Thirty-sixth District Station at Hunting Park and Germantown avenue, and also at the Twenty-first District Station at Woodland avenue and Market street.

Autos to Collect Minneapolis Mail.—Major W. D. Hale, postmaster at Minneapolis, has requested the government to furnish two automobiles for use in collecting mail, and it is believed that they will be furnished. The superintendent of delivery has gone to Milwaukee to inspect the operation of the auto mail wagons there.

Stage Line in New Haven, Conn.—A Knox sight-seeing bus of 30-passenger capacity, has been put into service by S. A. Lewis, on several streets of the city. Other cars of the same type will be used when needed, running as buses during the day and evening, and open to engagement for Savin Rock and other resorts along the Connecticut shore.

Pueblo, Cal., Get Taxicabs.—A Ford enclosed cab has been put into service here as the first of the taxicabs received by Robertson & Marks. It was run over the roads from Denver and has made a favorable impression in "sunville."

McKinney, Tex., to Establish Bus Service.—An automobile service will shortly be installed between Blue Ridge, Melissa and McKinney. A number of prominent men of Blue Ridge are interested in the service.

More Taxicabs for Dallas.—Increasing popularity of taxicabs has evinced itself to such an extent that four more machines are to be added to the present service of thirteen.

PERSONAL TRADE MENTION.

Percy Neel, president of the Automobile Sales Corporation of Philadelphia, which handles the Peerless and Cadillac, sailed last Saturday for a six weeks' trip abroad. Mr. Neel has just recovered from a long illness, and his physicians prescribed a rest and ozone of a sea voyage to complete the cure.

Cadwalader Washburn Kelsey, of Philadelphia, who is not unknown to fame in connection with the Maxwell car, will be married June 2 to Miss Mariah Sharwood, of Bryn Mawr, in the Church of the Redeemer at that place. After a honeymoon abroad, Mr. and Mrs. Kelsey will reside in Tarrytown, N. Y.

G. C. Lewis has joined the selling force of the New York branch of the E. R. Thomas Motor Company. Mr. Lewis was formerly Boston manager for the Dragon car, and prior to that time was manager of the Wayne Automobile Company's branch in Boston.

Edward A. Kingsbury has accepted the position of business manager of the Chase Motor Truck Company, of Syracuse, N. Y. He was formerly connected with the Hudson Portland Cement Company.

P. O. Sheenan has been appointed city salesman for Boston for the Republic Rubber Company, of New York, and will make his headquarters at the local branch at 735 Boylston street.

Lee Dykeman for some time associated with the Dayton Motor Car Company has been appointed superintendent of the Firestone Automobile Company, of Columbus, Ohio.

R. E. Ross, of the Quaker City Motor Club, has been appointed chairman of the contest committee, by President Berger, succeeding the late Ferdinand M. Johnson.

NEW AGENCIES ESTABLISHED.

Knox, Pittsburgh, Pa.—Hiland Automobile Company, in addition to the Peerless and E-M-F.

Winton, Altoona, Pa.—Hollidaysburg Automobile Company, Montgomery and Mulberry streets.

Dixie Flyer, Minneapolis.—Sangstrom Motor Company. For the entire Northwest.

Chalmers-Detroit and Thomas, Birmingham, Ala.—Birmingham Auto Company.

Columbia, Chicago.—Fred R. Jenkins Company, 1330 Michigan avenue.

Rider-Lewis, Minneapolis. — Segerstrom Automobile Company.

Elmore, Waterville, N. Y.—Orrin Terry and Fred C. Bufford.

Maxwell, Brainbridge, Ga.—E. T. Hines and T. M. Battle.

Hupmobile, Milwaukee, Wis.—Samuel B. & Harry C. Taylor.

Peerless, Fort Worth, Texas.—Hugh H. Lewis, Jr.

Ford & Overland, Washington, N. J.—Hoyt Sharp.

RECENT INCORPORATIONS.

Union Auto Company, Little Rock, Ark.—Capital, $10,000. To buy, sell, rent, repair, automobiles. Incorporators: President, C. B. Ledbetter; vice-president, C. K. Lincoln; secretary, L. E. Polk; treasurer, W. L. Hemingway; R. L. McKinney, J. F. Loughborough, D. H. Cantrell, J. L. Dibrell.

Garny-Mehserie Machine & Auto Company, Rochester, N. Y.—Capital, $2,000. To manufacture motors, engines, wagons, cars and vehicles of all kinds. Incorporators: George Garny, Theresa Garny, Henry Mehserie and Katherine Mehserie.

Plainfield Auto Sales Company, Elizabeth, N. J.—Capital, $25,000. Incorporators: C. C. Brown, C. C. Rocap and S. A. Aldrich. To manufacture and deal in automobiles of all kinds, and to deal in supplies and fixtures.

American Automobile Association Publishing Company, New York.—Capital, $2,000. Incorporators: Lewis R. Speare, F. H. Elliott and J. H. Bruce. To conduct a printing and publishing business.

Munsing Motor Car Company, Jersey City, N. J.—Capital, $1,000,000. To do a general manufacturing business. Incorporators: W. H. Buresmith, J. B. Franklin, C. H. Bellows, Jr.

Stoughton-Folkins Company, Portland, Me.—Capital, $10,000. To manufacture motors, engines and vehicles. President, M. S. Folkins; treasurer and clerk, P. T. Stoughton.

Park Garage Company, Asbury Park, N. J.—Capital, $125,000. Incorporators: A. M. Fisher, G. F. Mitchell and M. W. Bates. To conduct a general garage business.

Preston Auto Improvement Company, Boston.—Capital, $100,000. Incorporators: R. N. Gowing and F. G. Preston. To conduct a general automobile business.

L. B. Repair Company, New York.—Capital, $10,000. To deal in and repair automobiles. Incorporators: J. A. Lewis, F. H. Bonner and W. A. Rue.

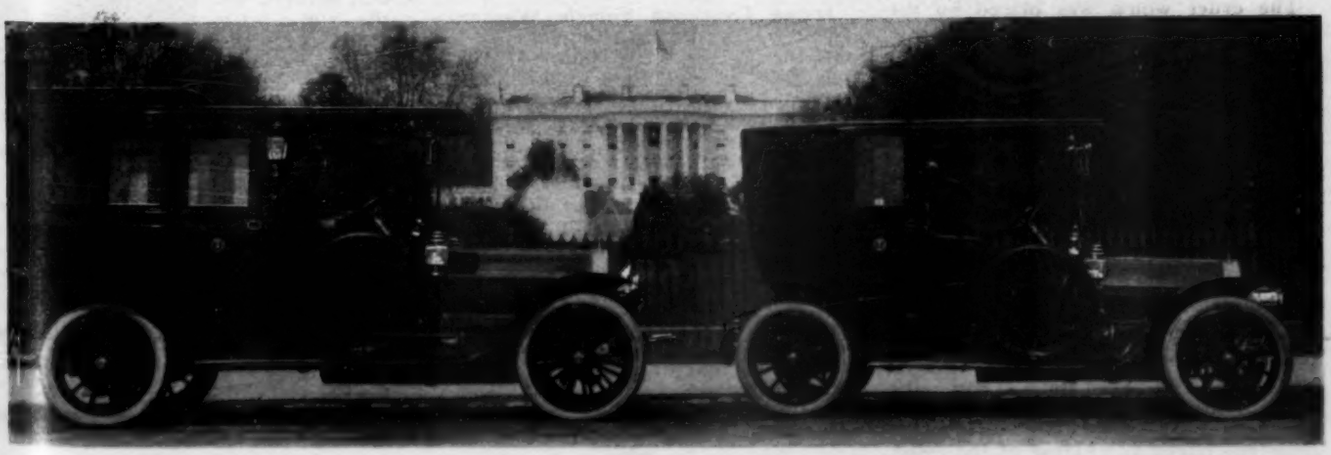
McDuffie Motor Car Company, Denver, Col.—Capital, $25,000. Incorporators: J. W. Ebert, C. H. McCausland, J. H. McDuffie.

McCord Manufacturing Company, Springfield, Ill.—Capital, $750,000. Maine corporation to manufacture automobile supplies.

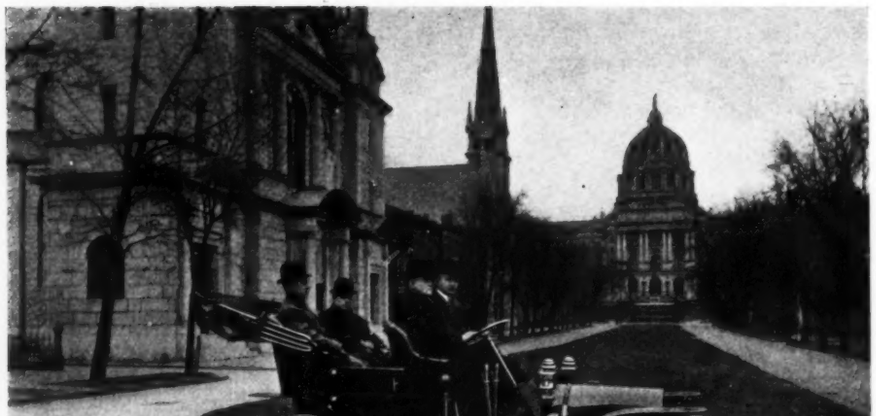
Albert Sterne Motor Car Company, St. Louis.—Capital $15,000. Incorporators: Albert Sterne, M. L. Weiss, L. A. Fassett.

NEW TRADE PUBLICATIONS.

Xargil Manufacturing Company, Utica, N. Y.—Mufflers which do not create a back pressure upon an engine have long been sought, and those which create a vacuum would give an ideal condition. The Xargil Manufacturing Company is now producing a muffler which is known as the Xargil Vacuum Muffler, and is described in a new catalog published by this concern. This booklet includes the reproduction of a curve, plotted from a series of tests made of the muffler at the Franklin Company's works in Syracuse. This shows that at 1100 revolutions of a Model D Franklin car the pressure in the muffler is but .4 of an ounce. The muffler consists of an outside elongated steel cylinder, with two smaller interior ones, divided in turn into some thirty compartments interconnected. The exhaust is divided into innumerable small jets, as explained by the booklet.



Six-Cylinder 48-Horsepower Suburban and Six-36 Landaulet Pierce Arrow Cars in the White House Service, at Washington.



In Front of the Pennsylvania Capitol in a Franklin.

In the background, at the end of the avenue, in Harrisburg, is shown the $13,000,000 State Capitol of the Keystone commonwealth. On the front seat of the air-cooled Franklin, Model G, are J. Cyde Mason, secretary of the Harrisburg Motor Club, and James Bell, of the Harrisburg Board of Trade.

An Amateur Trans-Continentalist.—From San Francisco to Portland, Me., and then back to the Pacific Coast by way of the northern route to Seattle is an automobile trip to be made this Summer by Mr. and Mrs. C. A. Littlefield, of Oakland, Cal. Mr. Littlefield has given considerable time and expense to preparations, both as regards his car and routes and roads. Marsh quick acting rims with Diamond 36 by 5 tires all around will be used, and the trip East, which will be by way of Los Angeles, New Orleans and Washington, includes also a visit to the Diamond rubber factories in Akron, O. The return journey will be via Buffalo and Chicago, thence for the most part along the route of the New York-Seattle endurance event.

Cameron Raises the Price.—The Cameron Motor Company of New York City, distributors of the four and six-cylinder air-cooled Cameron cars, announce an advance in price of three, four-cylinder models, as follows: Model 14, runabout, formerly $900, raised to $950; Model 14, three-passenger roadster, $950, raised to $985; Model 16, four-passenger roadster, $1,050, raised to $1,100. Harry Doherty, vice-president, states that the demand for the company's product is exceeding the most sanguine expectations, and that arrangements are already being made for the 1910 season.

Firestone Believes in Tire Contest.—With the approach of the Glidden Tour, and the discussion of penalties, H. S. Firestone, president of the Firestone Tire & Rubber Company, states that he favors a system of penalizations for tire troubles. He says: "A large per cent. of the stops en route are made because of trouble with tires, and it seems strange that tire service is not connected more closely with automobile efficiency. Penalties for weakness would inevitably raise the prevailing standard of tires."

Many One-Lung Autos in California.—H. J. Neumann, a Los Angeles, Cal., autoist, in sending along his renewal subscription to THE AUTOMOBILE says: "People out in this country are just waking up in the buying of up-to-date cars, for I think all the one-lungers in the whole country are now used here, where we have a different name for almost everything pertaining to the automobile. For instance, most folks call a windshield a glass front."

Remy Equipments for Older Models.—The manufacture of equipments for attaching its magnetos to early models of automobiles has proven a success, according to the Remy Electric Company, Anderson, Ind. Many owners of cars built as recently as 1907, not originally designed to have a magneto have been furnished with them, and the company is making and keeping a full set of fittings, with instructions for attaching.

Benz Importers Have Open House.—To celebrate the recent victories of the Benz racing car, the Benz Auto Import Company, of America, had an "open house" on last Saturday, with "scribes and good fellows" as guests. Incidentally the Sir Thomas Dewar $2,000 trophy, which was won at Daytona, was shown, and the improved business outlook made the cause for felicitations.

Cheyenne, Wyo., announces a Motordrome.—The Cheyenne Motor Club has announced that it has completed plans for the construction of a five-mile automobile race track to built near the city. There will be a course within a course, banked curves and other features.

New Men in Gramm-Logan Company.—The Gramm-Logan Motor Car Company, Bowling Green, Ohio, has added to its officials several leading men of the Lima Locomotive & Machine Works. Increased capital and factory facilities have been obtained.

RECENT BUSINESS CHANGES.

Gibney Brothers Have New Quarters.—James L. Gibney & Brother, the Philadelphia distributors of Continental tires and general dealers in Gibney solid tires and accessories, in order to relieve a cramped condition in their present quarters at 211-213 North Broad street, have secured the building next door at 215-217, and are having it thoroughly overhauled. The new store will soon be ready and will give a large, well-lighted salesroom, offices, stock rooms and tire repair shop. The building is a large three-story one, equipped with an electric automobile elevator and power.

Four Traction Auto Company Looks for Factory Site.—Minneapolis may be the location of the Four Traction Auto Company, the maker of the Kato trucks, according to factory officials. At present the machines are built at Mankato, Minn., but the necessity of increasing production has made a larger plant imperative, and Minneapolis sites have been examined. The concern was recently capitalized at $200,000, and has a large business in making trucks, patrol and fire wagons, all with the four-wheel driver, which has been such a marked success.

Luitweiler Pumping Engine Company Moves East.—Rochester, N. Y., will soon be the location of the Luitweiler Pumping Engine Company, now situated at Los Angeles, Cal. The plant of the American Laundry Company has been purchased, and will be occupied about June 1, after extensive alterations are completed. The concern is engaged in building automobile fire apparatus, and steam, gasoline and electric pumping engines.

Utica Pliers and Nippers Marketed Direct.—The Utica Drop Forge & Tool Company, of Utica, N. Y., is now marketing its products, pliers and nippers, direct to the trade. The new policy was begun on April 1 and has been found successful. The plant is in full operation, more than an acre of floor area being under one roof, with over a mile of industrial railroad between the various departments.

Davidge Motor Car Company in Binghamton, N. Y.—John M. Davidge, of Binghamton, has filed a certificate with the county clerk, announcing that he will go into business under the name of the Davidge Motor Car Company.

Birmingham Auto Company Changes Hands.—Leo Loeb and J. H. Loveman, of Birmingham, Ala., have purchased the Birmingham Auto Company, carrying with it the agency for the Chalmers-Detroit and Thomas cars.

Nesmith Buys Auto-Shine Company.—The C. I. Nesmith Company, Reading, Mass., has recently purchased the Auto-Shine Company, of Buffalo, N. Y., manufacturers of "Auto-Shine" a varnish restorer and polish.

IN AND ABOUT THE AGENCIES.

Fry Spark Plugs.—The Standard Sales Company, of New York City, is introducing to the trade the Fry spark plugs, made in 1-2 inch, metric, and A. L. A. M. sizes, with interchangeable porcelain and mica cores. Manager J. Stewart Smith is enthusiastic over the future, which the simplicity and reliability of the plug insure.

United Manufacturers Establish Branch Offices.—The following distributing centers and branch offices have been opened by the United Manufacturers: Chicago, 1430 Michigan avenue; Detroit, 225 Jefferson avenue; Cleveland, 1932 Euclid avenue; Philadelphia, 422 Commerce street; Boston, 109 Massachusetts avenue.

Rambler, Atlanta, Ga.—The Rambler has just broken into Atlanta, with Baynard Willingham in charge of the agency. A warehouse has been converted into a comfortable and commodious garage at 70 South Forsythe street.

TAXICABS AND TRANSIT.

Philadelphia to Have Auto Patrols.—Director of Public Works Clay is contemplating the installation of an automobile patrol service. Garages for this service are to be built at the new Thirty-sixth District Station at Hunting Park and Germantown avenue, and also at the Twenty-first District Station at Woodland avenue and Market street.

Autos to Collect Minneapolis Mail.—Major W. D. Hale, postmaster at Minneapolis, has requested the government to furnish two automobiles for use in collecting mail, and it is believed that they will be furnished. The superintendent of delivery has gone to Milwaukee to inspect the operation of the auto mail wagons there.

Stage Line in New Haven, Conn.—A Knox sight-seeing bus of 30-passenger capacity, has been put into service by S. A. Lewis, on several streets of the city. Other cars of the same type will be used when needed, running as buses during the day and evening, and open to engagement for Savin Rock and other resorts along the Connecticut shore.

Pueblo, Cal., Get Taxicabs.—A Ford enclosed cab has been put into service here as the first of the taxicabs received by Robertson & Marks. It was run over the roads from Denver and has made a favorable impression in "sunville."

McKinney, Tex., to Establish Bus Service.—An automobile service will shortly be installed between Blue Ridge, Melissa and McKinney. A number of prominent men of Blue Ridge are interested in the service.

More Taxicabs for Dallas.—Increasing popularity of taxicabs has evinced itself to such an extent that four more machines are to be added to the present service of thirteen.

PERSONAL TRADE MENTION.

Percy Neel, president of the Automobile Sales Corporation of Philadelphia, which handles the Peerless and Cadillac, sailed last Saturday for a six weeks' trip abroad. Mr. Neel has just recovered from a long illness, and his physicians prescribed a rest and ozone of a sea voyage to complete the cure.

Cadwalader Washburn Kelsey, of Philadelphia, who is not unknown to fame in connection with the Maxwell car, will be married June 2 to Miss Mariah Sharwood, of Bryn Mawr, in the Church of the Redeemer at that place. After a honeymoon abroad, Mr. and Mrs. Kelsey will reside in Tarrytown, N. Y.

G. C. Lewis has joined the selling force of the New York branch of the E. R. Thomas Motor Company. Mr. Lewis was formerly Boston manager for the Dragon car, and prior to that time was manager of the Wayne Automobile Company's branch in Boston.

Edward A. Kingsbury has accepted the position of business manager of the Chase Motor Truck Company, of Syracuse, N. Y. He was formerly connected with the Hudson Portland Cement Company.

P. O. Sheenan has been appointed city salesman for Boston for the Republic Rubber Company, of New York, and will make his headquarters at the local branch at 735 Boylston street.

Lee Dykeman for some time associated with the Dayton Motor Car Company has been appointed superintendent of the Firestone Automobile Company, of Columbus, Ohio.

R. E. Ross, of the Quaker City Motor Club, has been appointed chairman of the contest committee, by President Berger, succeeding the late Ferdinand M. Johnson.

NEW AGENCIES ESTABLISHED.

Knox, Pittsburgh, Pa.—Hiland Automobile Company, in addition to the Peerless and E-M-F.

Winton, Altoona, Pa.—Hollidaysburg Automobile Company, Montgomery and Mulberry streets.

Dixie Flyer, Minneapolis.—Sangstrom Motor Company. For the entire Northwest.

Chalmers-Detroit and Thomas, Birmingham, Ala.—Birmingham Auto Company.

Columbia, Chicago.—Fred R. Jenkins Company, 1330 Michigan avenue.

Rider-Lewis, Minneapolis. — Segerstrom Automobile Company.

Elmore, Waterville, N. Y.—Orrin Terry and Fred C. Bufford.

Maxwell, Brainbridge, Ga.—E. T. Hines and T. M. Battle.

Hupmobile, Milwaukee, Wis.—Samuel B. & Harry C. Taylor.

Peerless, Fort Worth, Texas.—Hugh H. Lewis, Jr.

Ford & Overland, Washington, N. J.—Hoyt Sharp.

RECENT INCORPORATIONS.

Union Auto Company, Little Rock, Ark.—Capital, $10,000. To buy, sell, rent, repair, automobiles. Incorporators: President, C. B. Ledbetter; vice-president, C. K. Lincoln; secretary, L. E. Polk; treasurer, W. L. Hemingway; R. L. McKinney, J. F. Loughborough, D. H. Cantrell, J. L. Dibrell.

Garny-Mehserle Machine & Auto Company, Rochester, N. Y.—Capital, $2,000. To manufacture motors, engines, wagons, cars and vehicles of all kinds. Incorporators: George Garny, Theresa Garny, Henry Mehserle and Katherine Mehserle.

Plainfield Auto Sales Company, Elizabeth, N. J.—Capital, $25,000. Incorporators: C. C. Brown, C. C. Rocap and S. A. Aldrich. To manufacture and deal in automobiles of all kinds, and to deal in supplies and fixtures.

American Automobile Association Publishing Company, New York.—Capital, $2,000. Incorporators: Lewis R. Speare, F. H. Elliott and J. H. Bruce. To conduct a printing and publishing business.

Munsing Motor Car Company, Jersey City, N. J.—Capital, $1,000,000. To do a general manufacturing business. Incorporators: W. H. Buresmith, J. B. Franklin, C. H. Bellows, Jr.

Stoughton-Folkins Company, Portland, Me.—Capital, $10,000. To manufacture motors, engines and vehicles. President, M. S. Folkins; treasurer and clerk, P. T. Stoughton.

Park Garage Company, Asbury Park, N. J.—Capital, $125,000. Incorporators: A. M. Fisher, G. F. Mitchell and M. W. Bates. To conduct a general garage business.

Preston Auto Improvement Company, Boston.—Capital, $100,000. Incorporators: R. N. Gowing and F. G. Preston. To conduct a general automobile business.

L. B, Repair Company, New York.—Capital, $10,000. To deal in and repair automobiles. Incorporators: J. A. Lewis, F. H. Bonner and W. A. Rue.

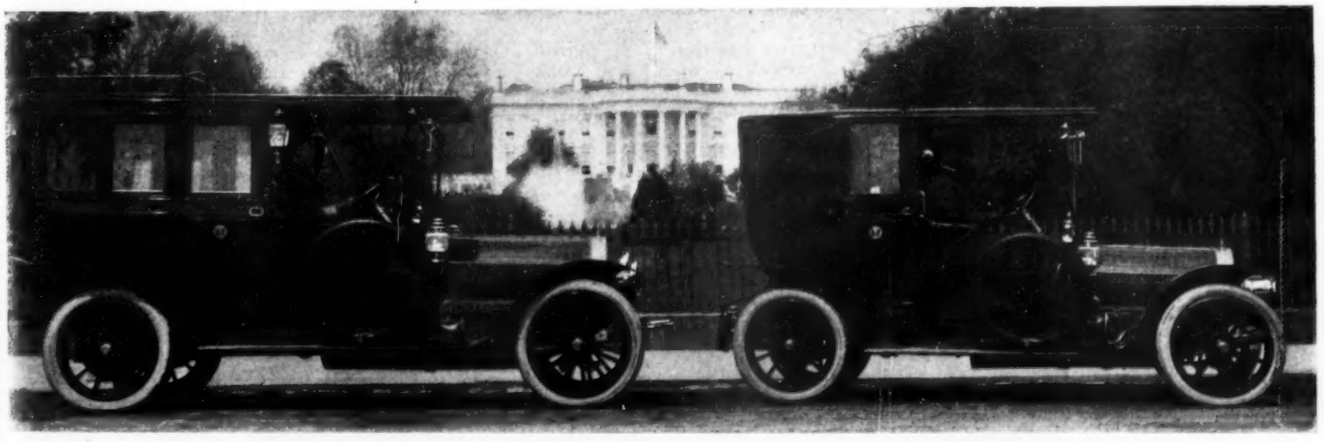
McDuffie Motor Car Company, Denver, Col.—Capital, $25,000. Incorporators: J. W. Ebert, C. H. McCausland, J. H. McDuffie.

McCord Manufacturing Company, Springfield, Ill.—Capital, $750,000. Maine corporation to manufacture automobile supplies.

Albert Sterne Motor Car Company, St. Louis.—Capital $15,000. Incorporators: Albert Sterne, M. L. Weiss, L. A. Fassett.

NEW TRADE PUBLICATIONS.

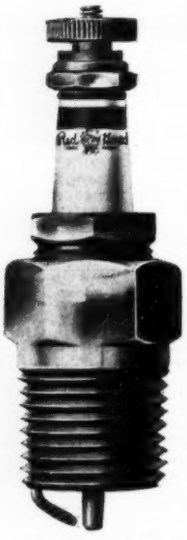
Xargil Manufacturing Company, Utica, N. Y.—Mufflers which do not create a back pressure upon an engine have long been sought, and those which create a vacuum would give an ideal condition. The Xargil Manufacturing Company is now producing a muffler which is known as the Xargil Vacuum Muffler, and is described in a new catalog published by this concern. This booklet includes the reproduction of a curve, plotted from a series of tests made of the muffler at the Franklin Company's works in Syracuse. This shows that at 1100 revolutions of a Model D Franklin car the pressure in the muffler is but .4 of an ounce. The muffler consists of an outside elongated steel cylinder, with two smaller interior ones, divided in turn into some thirty compartments interconnected. The exhaust is divided into innumerable small jets, as explained by the booklet.



Six-Cylinder 48-Horsepower Suburban and Six-36 Landaulet Pierce Arrow Cars in the White House Service, at Washington.

Information for Auto Users

Red-Head Spark Plugs.—These plugs are made and marketed by the Emil Grossman Company, 232 West Fifty-eighth street, New York City, and the design, as shown by the illustration, is along the accepted lines of spark-plug construction, with features embodied therein designed to give special results to the user. The porcelain cores are made of a special clay, aged for nine months by a new process which does not make them brittle. These are then formed and baked, and can be thrown with great force against the floor or a hard surface, but will only rebound and not break. Under a red-hot heat it is asserted they do not even bend, and in exhaustive tests made by the Electrical Testing Laboratories, in testing for the dielectric strength it was found that the Red-Head porcelain under 17,400 volts arced over its surface; whereas of two porcelains taken at random one was punctured at 8,000 volts and the other at 6,600, arced through a puncture.

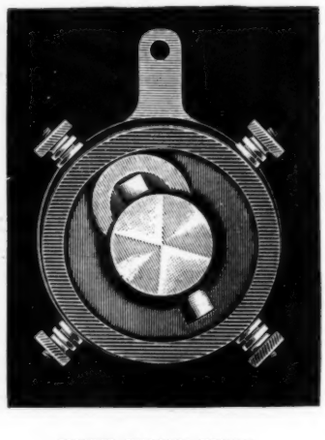


RED HEAD PLUG.

The shell or base is substantial and compact, turned from solid steel, with a solid brass bushing nut to surround the porcelain or mica core. The bushing may be forced down upon the shoulder of the porcelain to make a tight joint. One copper asbestos washer is used in packing the core into the shell, and it is claimed that sufficient packing is used to prevent its blowing out. Still another feature is in the electrode, which is extra large and heavy, so that it will stand any heat from either a magnet or battery and coil.

The order which was placed by the Emil Grossman Company for the parts of the plugs was double the largest of its kind ever made, according to Mr. Grossman. There are three types of plugs in the Red-Head class: One-half inch, A. L. A. M., and metric, made so that the porcelain is interchangeable with mica cores, and the price has been made uniform, one for any style.

Umph Roller Timer.—Among the season's best productions in the realm of ignition, is the Umph roller timer, manufactured by A. R. Mosler & Company, 163 West Twenty-ninth street, New York City. The illustration shows a front view of the timer, with the cover removed. In construction the Umph is such that wobbling is overcome and irregular wearing of the roller and shaft bearings is eliminated by the use of ball-bearings. In this timer the roller is itself a ball-bearing and is supported by a yoke which fits in a specially shaped slot in the front end of the hollow revolving shaft, so that the roller and its yoke can move radially under the action of a spring but cannot move sideways and therefore must keep true to the contact surface at all times. The shaft is mounted on two ball-bearings, the rear one running on a flanged ring and being held up to its work by a pinch-collar and arched spring-washer which fit over the rear end of the shaft. The front bearing revolves on a collar formed on the shaft itself. The segments are made of brass, each being of one piece, and are inserted by pressure from the interior of the casing. The rear end of the shaft is split, and is fastened on the timer shaft of the motor by means of the pinch-collar which in its turn is kept from sliding off by a horseshoe washer fitting into a groove cut in the shaft near its end. By removing this washer, the entire timer can be taken apart without the use of tools.

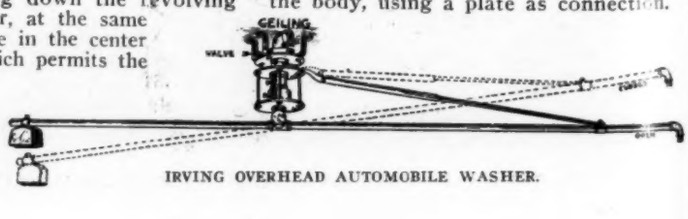


UMPH ROLLER TIMER.

Irving Overhead Vehicle Washers.—These handy devices are made in four patterns by the I. J. Smith Mfg. Co., 4283 Park avenue, New York City. Indestructible washer No. 3, the subject of the illustration, is constructed principally of brass, and provided with automatic water cut-off. Inserted in the top of the washer is a plunger attached to a tube, which runs down the center of the washer to the movable joint in the bottom of the device. When the party washing a car desires water, he pulls down on the hose, thus drawing down the revolving arm of the washer, at the same time working valve in the center of the washer, which permits the water to run. The arm is held down in position by adjusting the counter-balance weight so that the hose-arm is a few pounds the heavier. When it is desired to close the water off, a slight upward push on the hose will send the hose-arm upward, and in such a position it is retained by a catch to the supporting arm, and the water pressure at once closes the valve on the top of the washer. The sliding counter-balance weight can be so adjusted as to automatically close off the water the moment the hose is released from the hands of the operator.

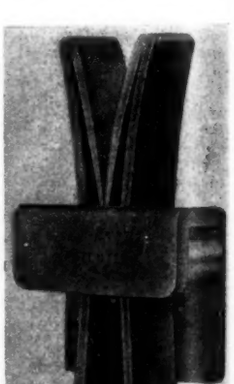
With the indestructible washer, the party using same cannot put more than 10 pounds pressure on the center by pulling down on the hose, for on placing more than that force on the revolving arm, the spring and counter-balance allows the arm to give down, and when the man lets go the hose the arm goes back into position.

The other Irving washers are Nos. 1 and 2, and the Every Ready. These are not made with automatic cut-offs. They have arms varying from 4½ feet to 6 feet in length. Electric-light equipments can be ordered with washers Nos. 2 and 3. All washers are secured to the ceiling by four lag screws, and to the end of the revolving arm is attached the hose, which is always hanging and ready for use. By their use hose can not be run over, trod upon, or rot out from water lying in it, and it also prevents the hose kinking.



IRVING OVERHEAD AUTOMOBILE WASHER.

Shippey Shock Absorber.—"In all our output during the last three years, we have yet to hear of one broken spring," is the statement made by the George E. Shippey Company, Pittsfield, Mass., makers of the Shippey shock absorber, in setting forth its claims for a record. As can be seen by the illustration, the Shippey is striking in its simplicity of construction and method of operation. The springs are made of the best crucible spring steel, oil tempered, and all wearing parts are specially hardened. No adjustment is necessary, once the absorber is applied to the car, and the easy movement of the springs is not affected on the smooth roads, but the device comes into play on the bumps. The absorber that is used on the front of the car is attached directly to the frame of the car at its top, and the connection on the bottom is made with a special clip. The rear absorber is attached inside of frame, under the body, using a plate as connection.



SHIPPEY SHOCK ABSORBER.